PTZ Optics 20X-USB

User Manual

V1.0

(English)

Preface

Thanks for using this USB3.0 HD Video Conferencing Camera.

This manual introduces the function, installation and operation of the HD camera. Prior to installation and usage, please read the manual thoroughly.

Precautions

This product can only be used in the specified conditions in order to avoid any damage to the camera:

- Don't subject the camera to rain or moisture.
- Don't remove the cover. Otherwise, you may get an electric shock. In case of abnormal operation, contact the authorized engineer.
- Never operating under unspecified temperature , humidity and power supply;
- Please use the soft dry cloth to clean the camera. If the camera is very dirty, clean it with diluted neuter detergent; do not use any type of solvents, which may damages the surface.

Note

This is class A production. Electromagnetic radiation at the specific frequency may affect the image quality of TV in home environment.

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Supplied Accessories

When you unpack, check that all the supplied accessories are included:

Camera 1
AC power adaptor 1
Power cord 1
RS232 cable 1
Remote controller 1
User manual 1

Note

- **Electric Safety**

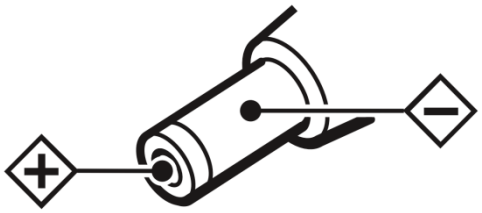
  Installation and operation must accord with electric safety standard.

- **Caution to transport**

  Avoid stress, vibration and soakage in transport, storage and installation.

- **Polarity of power supply**

The power supply of the product is +12V, the max electrical current is 2A .Polarity of the power supply plug drawing as follows.



- **Careful of installation**

  Do not grasp the camera head when carrying the camera. Don't turn camera head by hand. Doing so may result in mechanical damage.

  Don't apply in corrosive liquid, gas or solid environment to avoid damaging the cover which is made up of plastic material.

  To make sure no obstacle in rotation range.

  Never power on before installation is not completed.

- **Don't dismantle the camera**

  We are not responsible for any unauthorized modification or dismantling.

CAUTION!

The specific frequency of electromagnetic field may affect the image of the camera!

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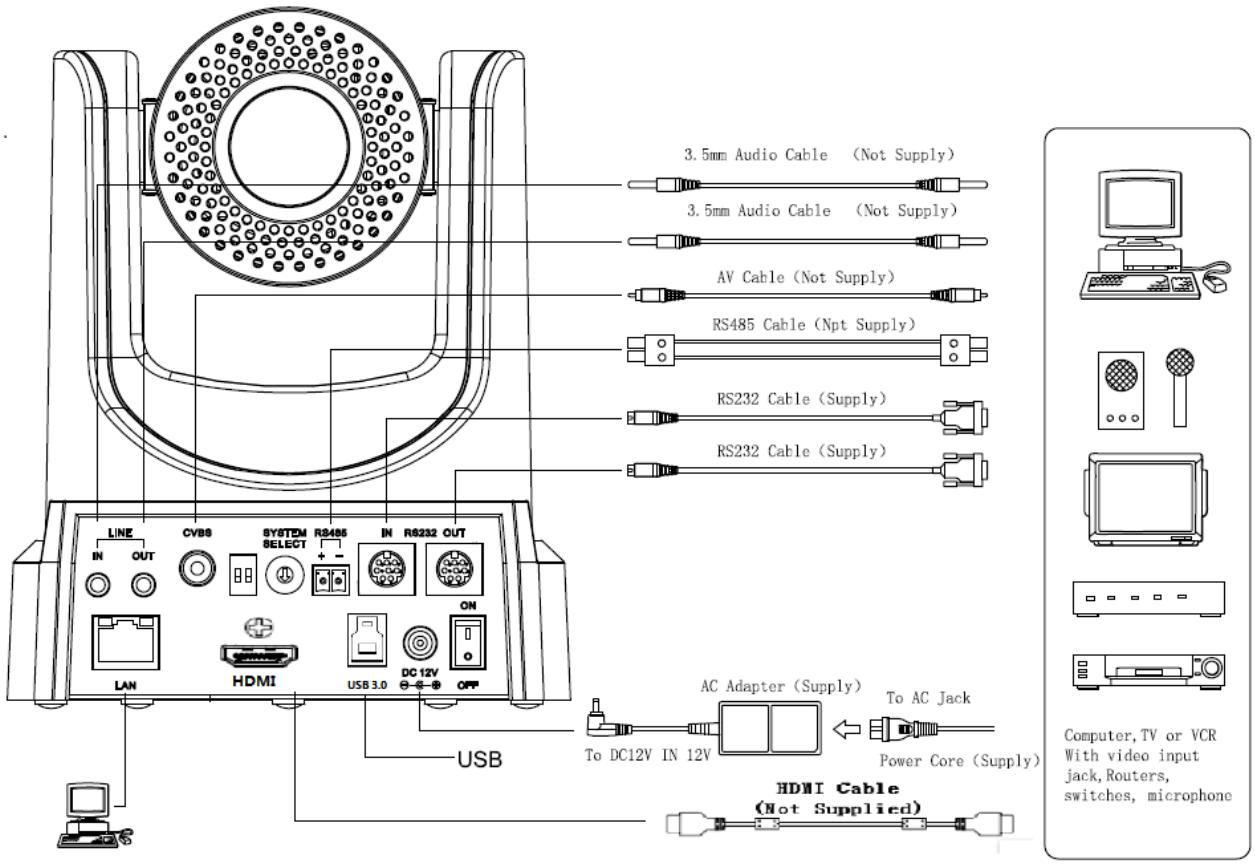
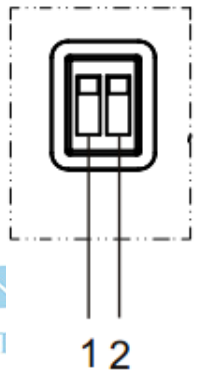
Quick Start

Step1. Please check connections are correct before starting



Step2. Setting switches



Set both of the switch1 and switch2 to "OFF'. That is "Normal Working Mode".

	SW-1	SW-2	Modes
1	OFF	OFF	Normal Working Mode
2	ON	OFF	-

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3	OFF	ON	-
4	ON	ON	-

Step3. Setting of the system select switch

The option of video format:

VIDEO SYSTEM			
0	-	8	-
1	-	9	-
2	1080i60	A	-
3	1080i50	B	-
4	720p60	C	-
5	720p50	D	576i
6	1080p30	E	480i
7	1080p25	F	-

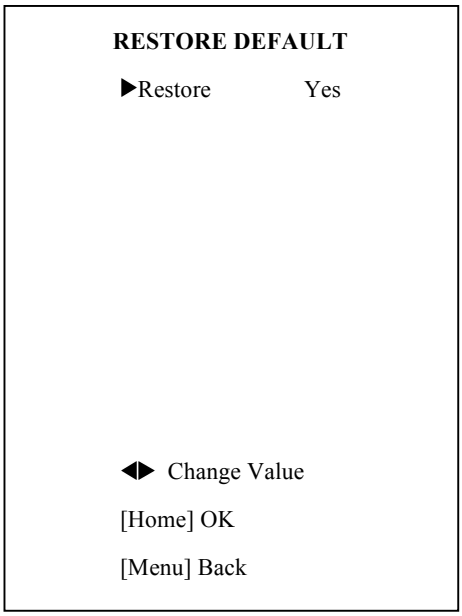
CAUTION:

a. After changing the switch, you need to restart the camera to take effect.

Step4. Press the Switch ON/OFF button on the rear of the camera, the power lamp light.

Step5. Pan-Tilt will rotate to the maximum position of top right after the camera started, then it return to the center, the process of initialization is finished. (Note: If the position preset 0 has been stored, the position preset 0 will be called up after initialization)

Step6. (Optional) If you want to restore the factory default settings, Press [MENU] button to display the OSD menu. Select the item [MENU] -> [RESTORE DEFAULT] -> [Restore]. Set the value [Yes], press [HOME] button to restore the factory default settings.



Features

1. Support USB3.0 transmission, the highest rate up to 5Gbps, ensure real-time lossless HD data transmission.

2. Support HD USB3.0,HD-SDI(optional),Network stream, three-stream simultaneous output, compatible with CVBS.

3. Adopt Panasonic's 1/3 inch, 2.12 million pixels high quality HD CMOS sensor, which can realize maximum 1920 x 1080 high resolution image with high quality, maximum output frame rate reach 30 frames per second.

4. High SNR of CMOS sensor combined with 2D and 3D noise reduction algorithm, effectively reduce the noise, even under low illumination conditions, picture can still keep clean and clear, SNR more than 55dB.

5. Use TAMRON high quality super telephoto lens, support 20x optical zoom, and 16x digital zoom.

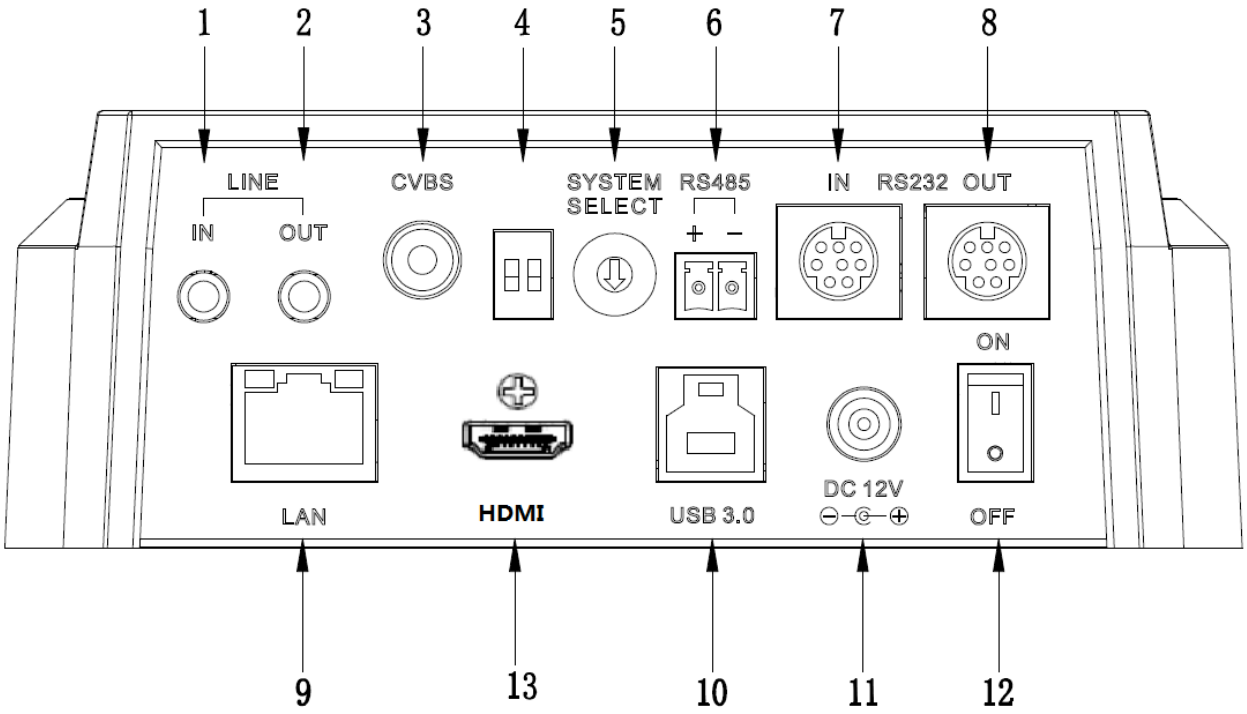
6. Using RS232/485 interface, all the parameters of the camera can be remote controlled by the high-speed communications. Support Web control.

Product Specification

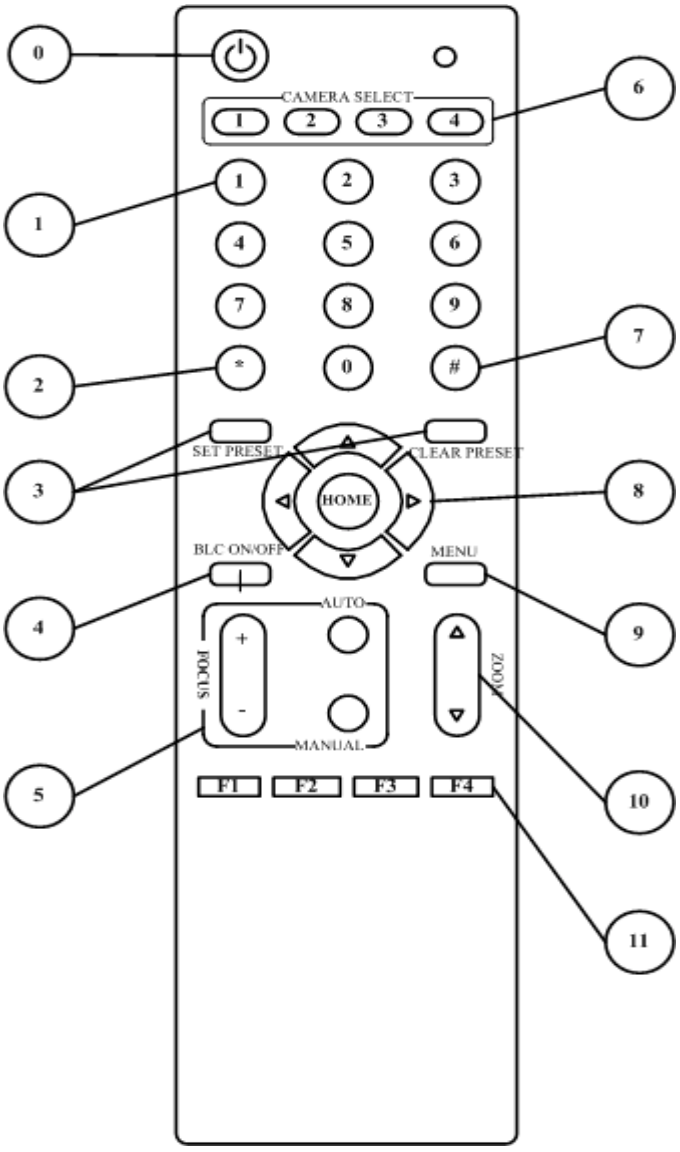
Model	20X-USB		
Name	PTZ Optics USB3.0 Type HD Color Video Camera		
Camera			
Video System	1080i/60,1080i/50, 1080p/30, 1080p/25, 720p/60, 720p/50, NTSC, PAL	Sub stream resolution	640x360,320x180
Sensor	1/3", CMOS, Total Pixel: 2.2M, Effective Pixel: 2.12M	Rate	128K,256K,384K,512K,768K,1024K,1536K,2048K,3072K,4096K, 5120K,6144K,8192K Optional, or Customed
Scanning Mode	Progressive	Rate control	Variable rate, fixed rate, fixed quality
Lens	20x, f4.42mm ~ 88.5mm, F1.8 ~ F2.8	Maximun frame rate	PAL:1-25, NTSC:1-30 is 30.
Digital Zoom	16x	I frame interval	Customizable (greater than the maximum frame rate)
Minimal Illumination	0.5 Lux @ (F1.8, AGC ON)	Video format	PAL,NTSC
Shutter	1/25s ~ 1/10000s	Web frame	Main frame,Sub frame
White Balance	Auto, Indoor, Outdoor, One-Push, Manual	web video size	Appropriate size, original size, full-screen
Backlight Compensation	Support	HD Output	1xUSB3.0,B-type female
Digital Noise Reduction	2D&3D Digital Noise Reduction		1xHDMI (Optional):Verision 1.3
Video S/N	≥55dB	SD Output	1xCVBS: RCA jack, 1Vp-p, 75Ω
Horizontal Angle of View	60.7° ~ 3.36°	Network interface	1xRJ45: 10M/100M Adaptive Ethernet ports
Vertical Angle of View	34.1° ~ 1.89°	Audio Input	1-ch 3.5mm audio interface, LINE IN/LINE OUT

Horizontal Rotation Range	±170°	Control Input/Output	1xRS-232 IN: 8pin Min DIN, Max Distance: 30m, Protocol: VISCA/ Pelco-D/Pelco-P
Vertical Rotation Range	-30° ~ +90°		1xRS-485: 2pin phoenix port, Max Distance: 1500m, Protocol: VISCA/Pelco-D/Pelco-P
Pan Speed Range	1.7° ~ 100°/s	Power Connector	JEITA type (DC IN 12V)
Tilt Speed Range	1.7° ~ 69.9°/s	Input Voltage	12V DC (10.8 ~ 13.0V DC)
Ceiling Installation	Support	Current Consumption	2.0A (Max)
Number of Preset	245	Operating Temperature	-5°C ~ 40°C
Preset Accuracy	0.1°	Storage Temperature	-20°C ~ 60°C
Video coding standards	H264,JPEG	Power Consumption	18W (Max)
Video frame	Main stream, Sub stream	Dimensions	141mm x 169mm x 176mm
Main stream resolution	1920x1080,1280x720	Weight	1.5Kg

Main Unit



1. Audio LINE IN Interface
2. Audio LINE OUT Interface
3. CVBS Interface
4. Dip switches
5. System select switch
6. RS485 jack
7. RS232 IN jack
8. RS232 OUT jack
9. Network
10. USB3.0
11. DC 12V jack
12. Power switch
13. HDMI



IR Remote Controller Explanation

0. Standby Button

Press this button to enter standby mode. Press it again to enter normal mode.

(Note: Power consumption in standby mode is approximately half of the normal mode)

1. Position Buttons

To set preset or call preset

2. * Button

3. Set/Clear Preset Buttons

Set preset: Store a preset position

[SET PRESET] + Numeric button (0-9): Setting a corresponding numeric key preset position

Clear preset: Erase a preset position

[CLEAR PRESET] + Numeric button (0-9)

Or: [*]+[#]+[CLEAR PRESET]: Erase all the preset individually

4. BLC (Backlight Compensation) Button

BLC ON/OFF: Press this button to enable the backlight compensation. Press it again to disable the backlight compensation.(NOTE: Effective only in auto exposure mode)

Note: If a light behind the subject, the subject will become dark. In this case, press the backlight ON / OFF button. To cancel this function, press the backlight ON / OFF button.

5. Focus Buttons

Used for focus adjustment.

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Press [AUTO] adjust the focuses on the center of the object automatically. To adjust the focus manually, press the [MANUAL] button, and adjust it with [Focus＋] (Focus on far object) and [Focus－] (Focus on near object)

6. Camera Select Buttons

Press the button corresponding to the camera you want to operate with the remote controller.

7. # Button

8. Pan/Tilt Control Buttons

Press arrow buttons to perform panning and tilting. Press [HOME] button to face the camera back to front

9. Menu Setting

Menu button: Press this button to enter or exit the OSD menu

10. Zoom Buttons

Zoom▲: Zoom In

Zoom▼: Zoom Out

11. Set Camera IR Address Buttons

[*]+[＃]+[F1]: Address1

[*]+[＃]+[F2]: Address2

[*]+[＃]+[F3]: Address3

[*]+[＃]+[F4]: Address4

USE IR Remote Controller

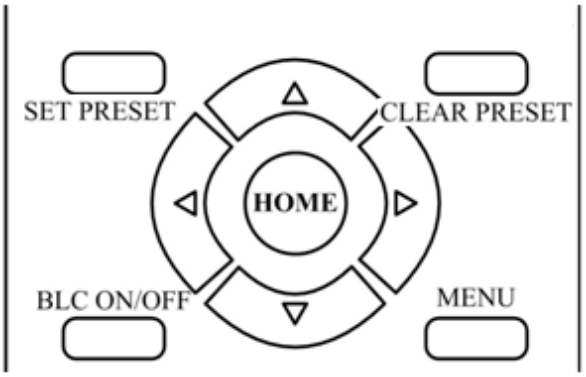
When the camera is working, you can use remote controller to perform panning, tilting, zooming and focusing, store and call back preset positions.

Button Instruction：

1. In this instruction, ‘press the button’ means the press and relax the two actions. Such as ‘press [HOME] button’ means to press the [HOME] key and then relax action, and a special note will be given if a hold down for more than one second is required.

2. When a button-combination is required, do it in sequence. For example, ‘[*] + [#] + [F1]’means press [*] first and then press [#] and press [F1] at last.

1. Pan/Tilt Control



Move up: Press [▲]

Move down: Press [▼]

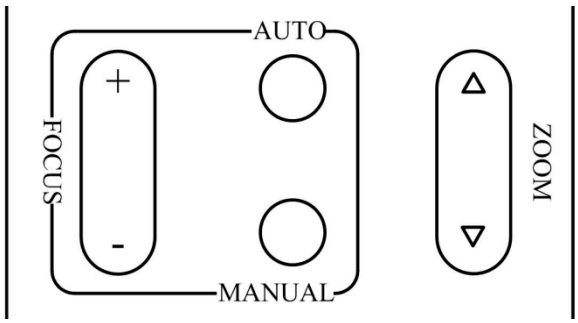
Move left: Press [◀]

Move right: Press [▶]

Face the camera back to front: Press [HOME]

Press and hold the up/down/left/right button, the camera will keep rotating from slow to fast, until it run to the mechanical limit; the camera stops as soon as the button is released.

2. Zoom



Zoom Out: press [ZOOM▼] button

Zoom In: press [ZOOM▲] button

Press and hold the button, the camera will keep zooming in or zooming out and it stops as soon as the button is released.

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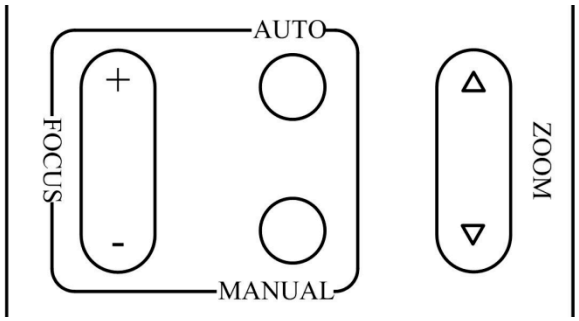
3. Focus Control



Focus Far: Press [FOCUS+] button (NOTE: Effective only in manual focus mode)

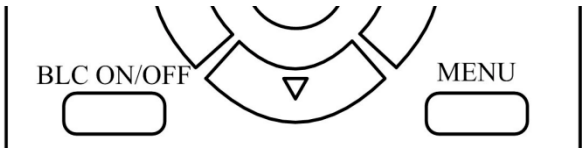
Focus Near: Press [FOCUS-] button (NOTE: Effective only in manual focus mode)

Press and hold the button, the action of focus continues and stops as soon as the button is released.

AUTO: Change focus mode to AF, adjusting the focus automatically.

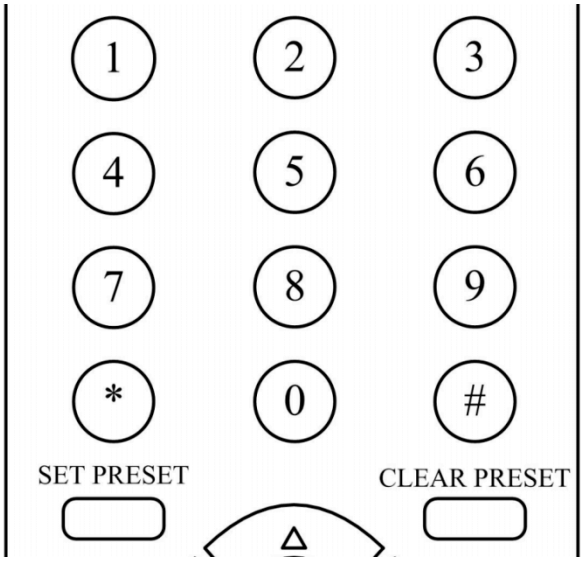
MANUAL: Change focus mode to MF, adjusting the focus manually.

4. Backlight Switch



BLC ON/OFF: Press this button to enable the backlight compensation. Press it again to disable the backlight compensation. (Note: Backlight is only effective in full auto exposure mode)

5. Presets Set/Clear



1. To store a preset position: The users should press the [SET PRESET] button first and then press the numeric button 0-9.

10 preset positions in total are available.

2. To erase the memory content of a preset position: The users should press the [CLEAR PRESET] button first and then press the numeric button 0-9.

Note:

Press [*]+[#]+[CLEAR PRESET] will erase all preset individually positions in the memory.

6. Recalling the Preset

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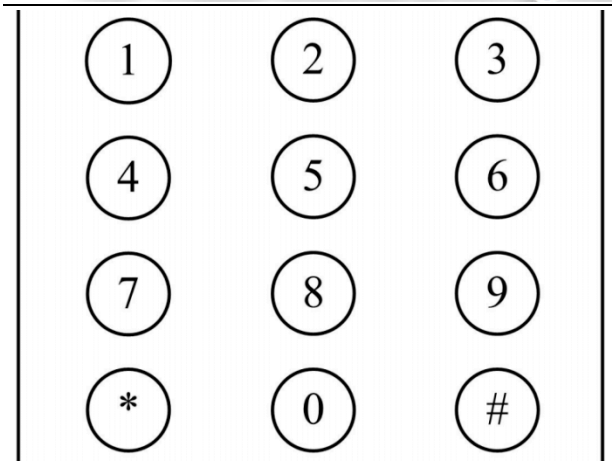
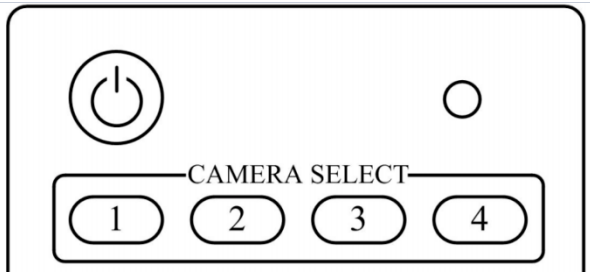


Press any of the numeric buttons 0-9 directly to recall stored preset positions and settings.

Note:

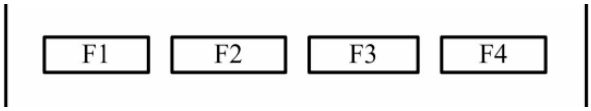
No action is executed if a relative preset position is not stored.

7. Camera Selection



Press the button corresponding to the camera you want to operate.

8. Camera IR Address Set



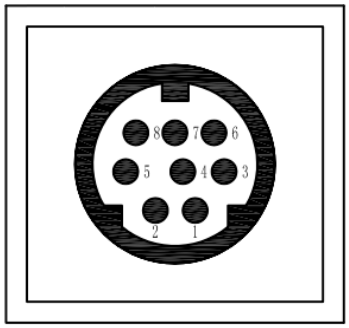
[*]+[＃]+[F1]: Address1

[*]+[＃]+[F2]: Address2

[*]+[＃]+[F3]: Address3

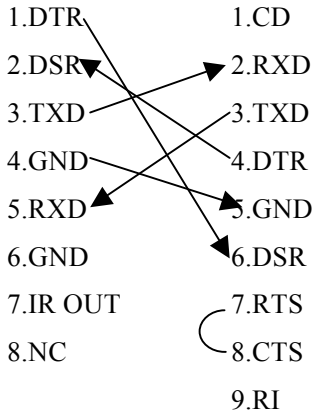
[*]+[＃]+[F4]: Address4

RS-232 Interface

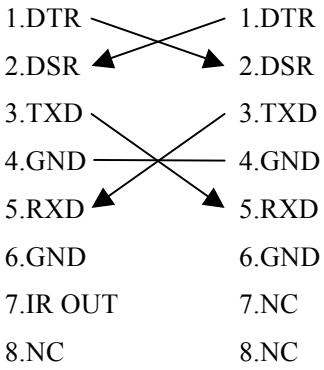


No.	Function
1	DTR
2	DSR
3	TXD
4	GND
5	RXD
6	GND
7	IR OUT
8	NC

Camera **Windows DB-9**



Camera **Mini DIN**



VISCA Network Configuration

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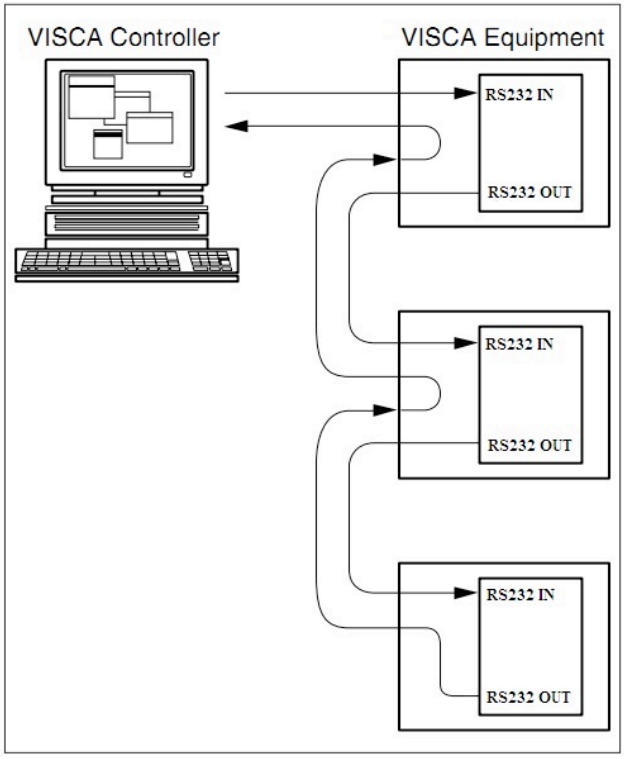

Serial Communication Control

In default working mode, the camera is able to connect to a VISCA controller with RS232C serial interface.

- RS232 Communication Control

  The camera can be controlled via RS232 ,the parameters of RS232C are as follows:

  Baud rate: 2400/4800/9600 bit/s.

  Start bit: 1 bit.

  Data bit: 8 bits.

  Stop bit: 1bit.

  Parity bit: none.

- RS485 Communication Control

The camera can be controlled via RS485, Half-duplex mode, supports VISCA or Pelco-D or Pelco-P protocol, supports the following configurations:

Baud rate: 2400/4800/9600 bit/s.

Start bit: 1 bit.

Data bit: 8 bits.

Stop bit: 1bit.

Parity bit: none.

Pan-Tilt will rotate to the maximum position of top right after the camera started, then it return to the center, the process of initialization is finished. (Note: If the position preset 0 has been stored, the position preset 0 will be called up after initialization) Then the users can control the camera with commands in the command list.

VISCA Command List

Part 1 Camera-Issued Messages

Ack/Completion Message			
Command	**Function**	**Command Packet**	**Comments**
ACK/Comletion Messages	ACK	z0 4y FF (y: Socket No.)	Return when the command is accepted.
	Completion	z0 5y FF (y: Socket No.)	Return when the command has been executed.

z = Camera Address + 8

Error Messages			
Command	**Function**	**Command Packet**	**Comments**
Error Messages	Syntax Error	z0 60 02 FF	Returned when the command format is different or when a command with illegal command parameters is accepted.
	Command Buffer Full	z0 60 03 FF	Indicates that two sockets are already being used(executing two commands) and the command could not be accepted when received.
	Command Canceled	z0 6y 04 FF (y: Socket No.)	Returned when a command which is being executed in a socket specified by the cancel command is canceled. The completion message for the command is not returned.
	No Socket	z0 6y 05 FF (y: Socket No.)	Returned when no command is executed in a socket specifild by the cancel command, or when an invalid socket number is specified.

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	Command Not Executable	z0 6y 41 FF (y: Execution command Socket No. Inquiry command: 0)	Returned when a command canot be executed due to current conditions.For example, when commands controlling the focus manually are received during auto focus.

Part 2 Camera Control Command

Command	Function	Command Packet	Comments
AddressSet	Broadcast	88 30 01 FF	Address setting
IF_Clear	Broadcast	88 01 00 01 FF	I/F Clear
CAM_Power	On	8x 01 04 00 02 FF	Power ON/OFF
	Off	8x 01 04 00 03 FF	
CAM_Zoom	Stop	8x 01 04 07 00 FF	
	Tele(Standard)	8x 01 04 07 02 FF	
	Wide(Standard)	8x 01 04 07 03 FF	
	Tele(Variable)	8x 01 04 07 2p FF	p = 0(low) - 7(high)
	Wide(Variable)	8x 01 04 07 3p FF	
	Direct	8x 01 04 47 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_Focus	Stop	8x 01 04 08 00 FF	
	Far(Standard)	8x 01 04 08 02 FF	
	Near(Standard)	8x 01 04 08 03 FF	
	Far(Variable)	8x 01 04 08 2p FF	p = 0(low) - 7(high)
	Near(Variable)	8x 01 04 08 3p FF	
	Direct	8x 01 04 48 0p 0q 0r 0s FF	pqrs: Focus Position
	Auto Focus	8x 01 04 38 02 FF	AF On/Off
	Manual Focus	8x 01 04 38 03 FF	
	Auto/Manual	8x 01 04 38 10 FF	
CAM_ZoomFocus	Direct	8x 01 04 47 0p 0q 0r 0s 0t 0u 0v 0w FF	pqrs: Zoom Position tuvw: Focus Position
CAM_WB	Auto	8x 01 04 35 00 FF	Normal Auto
	Indoor mode	8x 01 04 35 01 FF	Indoor mode

	Outdoor mode	8x 01 04 35 02 FF	Outdoor mode
	OnePush mode	8x 01 04 35 03 FF	One Push WB mode
	Manual	8x 01 04 35 05 FF	Manual Control mode
	OnePush trigger	8x 01 04 10 05 FF	One Push WB Trigger
CAM_RGain	Reset	8x 01 04 03 00 FF	Manual Control of R Gain
	Up	8x 01 04 03 02 FF	
	Down	8x 01 04 03 03 FF	
	Direct	8x 01 04 43 00 00 0p 0q FF	pq: R Gain
CAM_Bgain	Reset	8x 01 04 04 00 FF	Manual Control of B Gain
	Up	8x 01 04 04 02 FF	
	Down	8x 01 04 04 03 FF	
	Direct	8x 01 04 44 00 00 0p 0q FF	pq: B Gain
CAM_AE	Full Auto	8x 01 04 39 00 FF	Automatic Exposure mode
	Manual	8x 01 04 39 03 FF	Manual Control mode
	Shutter priority	8x 01 04 39 0A FF	Shutter Priority Automatic Exposure mode
	Iris priority	8x 01 04 39 0B FF	Iris Priority Automatic Exposure mode
	Bright	8x 01 04 39 0D FF	Bright Mode(Manual control)
CAM_SlowShutter	AutoSlowShutterLimit	8x 01 04 2A 0p 00 FF	
CAM_Iris	Reset	8x 01 04 0B 00 FF	Iris Setting
	Up	8x 01 04 0B 02 FF	
	Down	8x 01 04 0B 03 FF	
	Direct	8x 01 04 4B 00 00 0p 0q FF	pq: Iris Position
CAM_Gain	Reset	8x 01 04 0C 00 FF	Gain Setting
	Up	8x 01 04 0C 02 FF	
	Down	8x 01 04 0C 03 FF	
	Direct	8x 01 04 0C 00 00 0p 0q FF	pq: Gain Position
	Gain Limit	8x 01 04 2C 0p FF	p: Gain Position
CAM_Bright	Reset	8x 01 04 0D 00 FF	Bright Setting
	Up	8x 01 04 0D 02 FF	
	Down	8x 01 04 0D 03 FF	
	Direct	8x 01 04 0D 00 00 0p 0q FF	pq: Bright Position

CAM_ExpComp	On	8x 01 04 3E 02 FF	Exposure Compensation On/Off
	Off	8x 01 04 3E 03 FF	
	Reset	8x 01 04 0E 00 FF	Exposure Compensation Amount Setting
	Up	8x 01 04 0E 02 FF	
	Down	8x 01 04 0E 03 FF	
	Direct	8x 01 04 4E 00 00 0p 0q FF	pq: ExpComp Position
CAM_BackLight	On	8x 01 04 33 02 FF	Back Light Compensation On/Off
	Off	8x 01 04 33 03 FF	
CAM_NR(2D)Mode	Auto	8x 01 04 50 02 FF	ND2D Auto/Manual
	Manual	8x 01 04 50 03 FF	
CAM_NR(2D)Level	-	8x 01 04 53 0p FF	p: NR Setting (0: Off, level 1 to 5)
CAM_NR(3D)Level	-	8x 01 04 54 0p FF	p: NR Setting (0: Off, level 1 to 8)
CAM_Flicker	-	8x 01 04 23 0p FF	p: Flicker Settings (0: Off, 1: 50Hz, 2: 60Hz)
CAM_DHotPixel	-	8x 01 04 56 0p FF	p: Dynamic Hot Pixel Setting (0: 0ff, level 1 to 6)
CAM_ApertureMode(sharpness)	Auto	8x 01 04 05 02 FF	Sharpness Auto
	Manual	8x 01 04 05 02 FF	Sharpness Manual
CAM_Aperture(sharpness)	Reset	8x 01 04 02 00 FF	Aperture Control
	Up	8x 01 04 02 02 FF	
	Down	8x 01 04 02 03 FF	
	Direct	8x 01 04 42 00 00 0p 0q FF	pq: Aperture Gain
CAM_PictureEffect	Off	8x 01 04 63 00 FF	Picture Effect Setting
	B&W	8x 01 04 63 04 FF	
CAM_Memory	Reset	8x 01 04 3F 00 pp FF	pp: Memory Number(=0 to 127)
	Set	8x 01 04 3F 01 pp FF	
	Recall	8x 01 04 3F 02 pp FF	
CAM_LR_Reverse	On	8x 01 04 61 02 FF	Image Flip Horizontal On/Off
	Off	8x 01 04 61 03 FF	
CAM_PictureFlip	On	8x 01 04 66 02 FF	Image Flip Vertical On/Off
	Off	8x 01 04 66 03 FF	

CAM_RegisterValue	-	8x 01 04 24 mn 0p 0q FF	mm: Register No. (=00-7F) pp: Register Value (=00-7F)
CAM_ColorGain	Diret	8x 01 04 49 00 00 00 0p FF	p: Color Gain setting 0h (60%) to Eh (200%)
SYS_Menu	Off	8x 01 06 06 03 FF	Turns off the menu screen
Pan_tiltDrive	Up	8x 01 06 01 VV WW 03 01 FF	VV: Pan speed 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed 0x01 (low speed) to 0x14 (high speed) YYYY: Pan Position ZZZZ: Tilt Position
	Down	8x 01 06 01 VV WW 03 02 FF	
	Left	8x 01 06 01 VV WW 01 03 FF	
	Right	8x 01 06 01 VV WW 02 03 FF	
	Upleft	8x 01 06 01 VV WW 01 01 FF	
	Upright	8x 01 06 01 VV WW 02 01 FF	
	DownLeft	8x 01 06 01 VV WW 01 02 FF	
	DownRight	8x 01 06 01 VV WW 02 02 FF	
	Stop	8x 01 06 01 VV WW 03 03 FF	
	AbsolutePosition	8x 01 06 02 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	RelativePosition	8x 01 06 03 VV WW 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	
	Home	8x 01 06 04 FF	
	Reset	8x 01 06 05 FF	
Pan_tiltLimitSet	LimitSet	8x 01 06 07 00 0W 0Y 0Y 0Y 0Y 0Z 0Z 0Z 0Z FF	W: 1 UpRight 0: DownLeft YYYY: Pan Limit Position ZZZZ: Tilt Position
	LimitClear	8x 01 06 07 01 0W 07 0F 0F 0F 07 0F 0F 0F FF	
CAM_AFSensitivity	High	8x 01 04 58 01 FF	AF Sensitivity High/Normal/Low
	Normal	8x 01 04 58 02 FF	
	Low	8x 01 04 58 03 FF	
CAM_SettingReset	Reset	8x 01 04 A0 10 FF	Reset Factory Setting
CAM_Brightness	Direct	8x 01 04 A1 00 00 0p 0q FF	pq: Brightness Position
CAM_Contrast	Direct	8x 01 04 A2 00 00 0p 0q FF	pq: Contrast Position
CAM_Flip	Off	8x 01 04 A4 00 FF	Single Command For Video Flip
	Flip-H	8x 01 04 A4 01 FF	
	Flip-V	8x 01 04 A4 02 FF	

	Flip-HV	8x 01 04 A4 03 FF	
CAM_SettingSave	Save	8x 01 04 A5 10 FF	Save Current Setting
CAM_Iridix	Direct	8x 01 04 A7 00 00 0p 0q FF	pq: Iridix Position
CAM_AWBSensitivity	High	8x 01 04 A9 00 FF	High
	Normal	8x 01 04 A9 01 FF	Normal
	Low	8x 01 04 A9 02 FF	Low
CAM_AFZone	Top	8x 01 04 AA 00 FF	AF Zone weight select
	Center	8x 01 04 AA 01 FF	
	Bottom	8x 01 04 AA 02 FF	
CAM_ColorHue	Direct	8x 01 04 4F 00 00 00 0p FF	p: Color Hue setting 0h (− 14 dgrees) to Eh (+14 degrees

Part 3 Query Command

Inquiry Command List			
Command	**Command packed**	**Inquiry Packet**	**Comments**
CAM_PowerInq	8x 09 04 00 FF	y0 50 02 FF	On
		y0 50 03 FF	Off(Standby)
		y0 50 04 FF	Internal power ciruit error
CAM_ZoomPosInq	8x 09 04 47 FF	y0 50 0p 0q 0r 0s FF	pqrs: Zoom Position
CAM_FocusAFModeInq	8x 09 04 38 FF	y0 50 02 FF	Auto Focus
		y0 50 03 FF	Manual Focus
CAM_FocusPosInq	8x 09 04 48 FF	y0 50 0p 0q 0r 0s FF	pqrs: Focus Position
CAM_WBModeInq	8x 09 04 35 FF	y0 50 00 FF	Auto
		y0 50 01 FF	Indoor mode
		y0 50 02 FF	Outdoor mode
		y0 50 03 FF	OnePush mode
		y0 50 05 FF	Manual
CAM_RGainInq	8x 09 04 43 FF	y0 50 00 00 0p 0q FF	pq: R Gain
CAM_BGainInq	8x 09 04 44 FF	y0 50 00 00 0p 0q FF	pq: B Gain
CAM_AEModeInq	8x 09 04 39 FF	y0 50 00 FF	Full Auto
		y0 50 03 FF	Manual

		y0 50 0A FF	Shutter priority
		y0 50 0B FF	Iris priority
		y0 50 0D FF	Bright
CAM_ShutterPosInq	8x 09 04 4A FF	y0 50 00 00 0p 0q FF	pq: Shutter Position
CAM_IrisPosInq	8x 09 04 4B FF	y0 50 00 00 0p 0q FF	pq: Iris Position
CAM_BrightPosInq	8x 09 04 4D FF	y0 50 00 00 0p 0q FF	pq: Bright Position
CAM_ExpCompModeInq	8x 09 04 3E FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_ExpCompPosInq	8x 09 04 4E FF	y0 50 00 00 0p 0q FF	pq: ExpComp Position
CAM_BacklightModeInq	8x 09 04 33 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_Nosise2DModeIng	8x 09 04 50 FF	y0 50 02 FF	Auto Noise 2D
		y0 50 03 FF	Manual Noise 3D
CAM_Nosise2DLevel	8x 09 04 53 FF	y0 50 0p FF	Noise Reduction (2D) p: 0 to 5
CAM_Noise3DLevel	8x 09 04 54 FF	y0 50 0p FF	Noise Reduction (3D) p: 0 to 8
CAM_FlickerModeInq	8x 09 04 55 FF	y0 50 0p FF	p: Flicker Settings(0: OFF, 1: 50Hz, 2: 60Hz)
CAM_ApertureModeInq(Sharpness)	8x 09 04 05 FF	y0 50 02 FF	Auto Sharpness
		y0 50 03 FF	Manual Sharpness
CAM_ApertureInq(Sharpness)	8x 09 04 42 FF	y0 50 00 00 0p 0q FF	pq: Aperture Gain
CAM_PictureEffectModeInq	8x 09 04 63 FF	y0 50 02 FF	Off
		y0 50 04 FF	B&W
CAM_MemoryInq	8x 09 04 3F FF	y0 50 0p FF	p: Memory number last operated.
SYS_MenuModeInq	8x 09 06 06 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_LR_ReverseInq	8x 09 04 61 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
CAM_PictureFlipInq	8x 09 04 66 FF	y0 50 02 FF	On
		y0 50 03 FF	Off

CAM_RegisterValueInq	8x 09 04 24 mm FF	y0 50 0p 0p ff	mm: Register No. (00 to FF) pp: Register Value (00 to FF)
CAM_ColorGainInq	8x 09 04 49 FF	y0 50 00 00 00 0p FF	p: Color Gain setting 0h (60%) to Eh (200%)
CAM_IDInq	8x 09 04 22 FF	y0 50 0p 0q 0r 0s FF	pqrs: Camera ID
CAM_VersionInq	8x 09 00 02 FF	y0 50 ab cd mn pq rs tu vw FF	ab: Factory Code(00: VHD, 01:MR, 08:T) cd: Hardware Version mnpq: ARM Version rstu: FPGA Version vw: Camera model 01: C Type 02: M Type 03: S Type
VideoSystemInq	8x 09 06 23 FF	y0 50 00 FF	1920x1080i60
		y0 50 01 FF	1920x1080p30
		y0 50 02 FF	1280x720p60
		y0 50 04 FF	NTSC
		y0 50 05 FF	NTSC
		y0 50 06 FF	NTSC
		y0 50 07 FF	1920x1080p60
		y0 50 08 FF	1920x1080i50
		y0 50 09 FF	1920x1080p25
		y0 50 0A FF	1280x720p50
		y0 50 0C FF	PAL
		y0 50 0D FF	PAL
		y0 50 0E FF	PAL
IR_Receive	8x 09 06 08 FF	y0 50 02 FF	On
		y0 50 03 FF	Off
Pan-tiltMaxSpeedInq	8x 09 06 11 FF	y0 50 ww zz FF	ww: Pan Max Speed zz: Tilt Max Speed
Pan-tiltPosInq	8x 09 06 12 FF	y0 50 0w 0w 0w 0w 0z 0z 0z 0z FF	wwww: Pan Position zzzz: Tilt Position

CAM_TypeInq	8x 09 00 03 FF	y0 50 01 FF	C Type
		y0 50 02 FF	M Type
		y0 50 03 FF	S Type
CAM_DateInq	8x 09 00 04 FF	y0 50 0r ss uu uu vv ww 0D FF	Version dater: Big Version Numberss: Little Version Numberuuuu: Yearvv: Monthww: Day
CAM_ModeInq	8x 09 04 A6 FF	y0 50 00 FF	Mode0
		y0 50 02 FF	Mode2
CAM_GainLimitInq	8x 09 04 2C FF	y0 50 0q FF	p: Gain Limit
CAM_DHotPixelInq	8x 09 04 56 FF	y0 50 0q FF	p: Dynamic Hot Pixel Setting (0: 0ff, level 1 to 6)
CAM_AFSensitivityInq	8x 09 04 58 FF	y0 50 01 FF	High
		y0 50 02 FF	Normal
		y0 50 03 FF	Low
CAM_BrightnessInq	8x 09 04 A1 FF	y0 50 00 00 0p 0q FF	pq: Brightness Position
CAM_ContrastInq	8x 09 04 A2 FF	y0 50 00 00 0p 0q FF	pq: Contrast Position
CAM_FlipInq	8x 09 04 A4 FF	y0 50 00 FF	Off
		y0 50 01 FF	Flip-H
		y0 50 02 FF	Flip-V
		y0 50 03 FF	Flip-HV
CAM_IridixInq	8x 09 04 A7 FF	y0 50 00 00 0p 0q FF	pq: Iridix Position
CAM_AFZone	8x 09 04 AA FF	y0 50 00 FF	Top
		y0 50 01 FF	Center
		y0 50 02 FF	Bottom
CAM_ColorHueInq	8x 09 04 4F FF	y0 50 00 00 00 0p FF	p: Color Hue setting 0h (− 14 dgrees) to Eh (+14 degrees
CAM_AWBSensitivityInq	8x 09 04 A9 FF	y0 50 00 FF	High
		y0 50 01 FF	Normal
		y0 50 02 FF	Low

Block Inquiry Command List

Command	Command packed	Inquiry Packet	Comments
CAM_LensBlockInq	8x 09 7E 7E 00 FF	y0 50 0u 0u 0u 0u 00 00 0v 0v 0v 0v 00 0w 00 FF	uuuu: Zoom Position vvvv: Focus Position w.bit0: Focus Mode 1: Auto 0: Manual
CAM_CameraBlockInq	8x 09 7E 7E 01 FF	y0 50 0p 0p 0q 0q 0r 0s tt 0u vv ww 00 xx 0z FF	pp: R_Gain qq: B_Gain r: WB Mode s: Aperture tt: AE Mode u.bit2: Back Light u.bit1: Exposure Comp. vv: Shutter Position ww: Iris Position xx: Bright Position z: Exposure Comp. Position
CAM_OtherBlockInq	8x 09 7E 7E 02 FF	y0 50 0p 0q 00 0r 00 00 00 00 00 00 00 00 00 FF	p.bit0: Power 1:On, 0:Off q.bit2: LR Reverse 1:On, 0:Off r.bit3~0: Picture Effect Mode
CAM_EnlargementBlockInq	8x 09 7E 7E 03 FF	y0 50 00 00 00 00 00 00 00 0p 0q rr 0s 0t 0u FF	p: AF sensitivity q.bit0: Picture flip(1:On, 0:Off) rr.bit6~3: Color Gain(0h(60%) to Eh(200%)) s: Flip(0: Off, 1:Flip-H, 2:Flip-V, 3:Flip-HV) t.bit2~0: NR2D Level u: Gain Limit

Note:

The [x] in the above table is the camera address, [y] = [x + 8].

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Pelco-D Protocol Command List

Function	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
Up	0xFF	Address	0x00	0x08	Pan Speed	Tilt Speed	SUM
Down	0xFF	Address	0x00	0x10	Pan Speed	Tilt Speed	SUM
Left	0xFF	Address	0x00	0x04	Pan Speed	Tilt Speed	SUM
Right	0xFF	Address	0x00	0x02	Pan Speed	Tilt Speed	SUM
Zoom In	0xFF	Address	0x00	0x20	0x00	0x00	SUM
Zoom Out	0xFF	Address	0x00	0x40	0x00	0x00	SUM
Focus Far	0xFF	Address	0x00	0x80	0x00	0x00	SUM
Focus Near	0xFF	Address	0x01	0x00	0x00	0x00	SUM
Set Preset	0xFF	Address	0x00	0x03	0x00	Preset ID	SUM
Clear Preset	0xFF	Address	0x00	0x05	0x00	Preset ID	SUM
Call Preset	0xFF	Address	0x00	0x07	0x00	Preset ID	SUM
Auto Focus	0xFF	Address	0x00	0x2B	0x00	0x01	SUM
Manual Focus	0xFF	Address	0x00	0x2B	0x00	0x02	SUM
Query Pan Position	0xFF	Address	0x00	0x51	0x00	0x00	SUM
Query Pan Position Response	0xFF	Address	0x00	0x59	Value High Byte	Value Low Byte	SUM
Query Tilt Position	0xFF	Address	0x00	0x53	0x00	0x00	SUM
Query Tilt Position Response	0xFF	Address	0x00	0x5B	Value High Byte	Value Low Byte	SUM
Query Zoom Position	0xFF	Address	0x00	0x55	0x00	0x00	SUM
Query Zoom Position Response	0xFF	Address	0x00	0x5D	Value High Byte	Value Low Byte	SUM

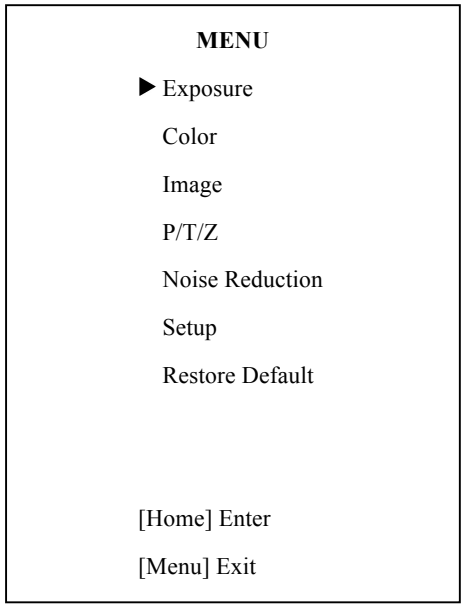
Pelco-P Protocol Command List

Function	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte8
Up	0xA0	Address	0x00	0x08	Pan Speed	Tilt Speed	0xAF	XOR
Down	0xA0	Address	0x00	0x10	Pan Speed	Tilt Speed	0xAF	XOR
Left	0xA0	Address	0x00	0x04	Pan Speed	Tilt Speed	0xAF	XOR
Right	0xA0	Address	0x00	0x02	Pan Speed	Tilt Speed	0xAF	XOR
Zoom In	0xA0	Address	0x00	0x20	0x00	0x00	0xAF	XOR
Zoom Out	0xA0	Address	0x00	0x40	0x00	0x00	0xAF	XOR
Focus Far	0xA0	Address	0x00	0x80	0x00	0x00	0xAF	XOR
Focus Near	0xA0	Address	0x01	0x00	0x00	0x00	0xAF	XOR
Set Preset	0xA0	Address	0x00	0x03	0x00	Preset ID	0xAF	XOR
Clear Preset	0xA0	Address	0x00	0x05	0x00	Preset ID	0xAF	XOR
Call Preset	0xA0	Address	0x00	0x07	0x00	Preset ID	0xAF	XOR
Auto Focus	0xA0	Address	0x00	0x2B	0x00	0x01	0xAF	XOR
Manual Focus	0xA0	Address	0x00	0x2B	0x00	0x02	0xAF	XOR
Query Pan Position	0xA0	Address	0x00	0x51	0x00	0x00	0xAF	XOR
Query Pan Position Response	0xA0	Address	0x00	0x59	Value High Byte	Value Low Byte	0xAF	XOR
Query Tilt Position	0xA0	Address	0x00	0x53	0x00	0x00	0xAF	XOR
Query Tilt Position Response	0xA0	Address	0x00	0x5B	Value High Byte	Value Low Byte	0xAF	XOR
Query Zoom Position	0xA0	Address	0x00	0x55	0x00	0x00	0xAF	XOR
Query Zoom Position Response	0xA0	Address	0x00	0x5D	Value High Byte	Value Low Byte	0xAF	XOR

Menu Setting

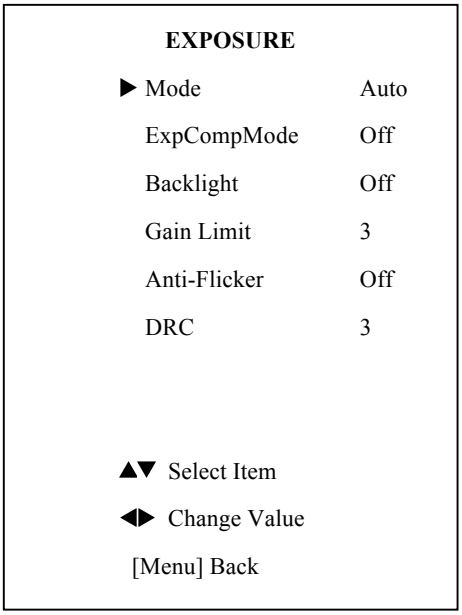
1. MENU

Press [MENU] button to display the main menu on the normal screen, using arrow button to move the cursor to the item to be set. Press the [HOME] button to enter the corresponding sub-menu.



2. EXPOSURE

Move the cursor to the Exposure item in the main menu and press [home] button, EXPOSURE menu appears, as shown in the following figure.



Mode: Exposure mode. Optional items: Auto, Manual, SAE, AAE, Bright

ExpCompMode: Exposure compensation mode, Optional items: On, Off (Effective only in Auto mode)

ExpComp: Exposure compensation value, Optional items:-7 ~ 7(Effective only in ExpComp Mode item to On)

Gain Limit: Maximum gain limit. Optional items: 0 ~ 15 (Effective only in Auto, AAE, Bright mode)

Backlight: Set the backlight compensation, Optional items: On, Off (Effective only in Auto mode)

DRC: DRC strength, Optional items: 0 ~ 8.

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Bright: Intensity control, Optional items: 00~17. (Effective only in Bright mode)

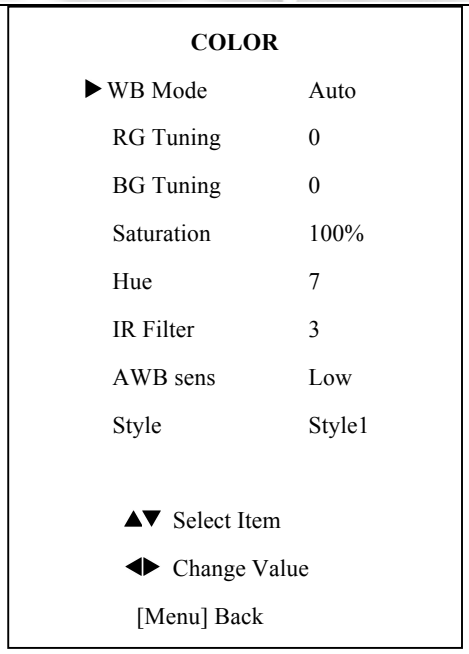
Anti-Flicker Flicker: Anti-flicker. Optional items: Off, 50Hz, 60Hz (Effective only in Auto, Bright mode)

Iris: Aperture value. Optional items: F1.8, F2.0,F2.4,F2.8,F3.4,F4.0,F4.8,F5.6,F6.8,F8.0,F9.6,F11.0, Close（Effective only in Manual, AAE mode）

Shutt: Shutter value. Optional items: 1/30,1/60, 1/90,1/100,1/125,1/180,1/250,1/350,1/500,1/725,1/1000,1/1500,1/2000,1/3000,1/4000,1/6000,1/10000 (Effective only in Manual, SAE mode)

3. COLOR

Move the cursor to the Color item in the main menu and press [home] button, COLOR menu appears, as shown in the following figure.



WB-Mode: White balance mode. Optional items: Auto, Indoor, Outdoor, One Push (ok),Manual

RG: Red gain. Optional items: 0~255（Effective only in Manual mode）

BG: Blue gain. Optional items: 0~255（Effective only in Manual mode）

RG Tuning: Red gain fine-tuning, Optional items: -10~10（Effective only in Auto, Indoor, Outdoor mode）

BG Tuning: Blue gain fine-tuning, Optional items: -10~10（Effective only in Auto, Indoor, Outdoor mode）

Sat.: Saturation. Optional items: 60% ~ 200%.

Hue: Chroma adjustment, Optional items:0 ~ 14

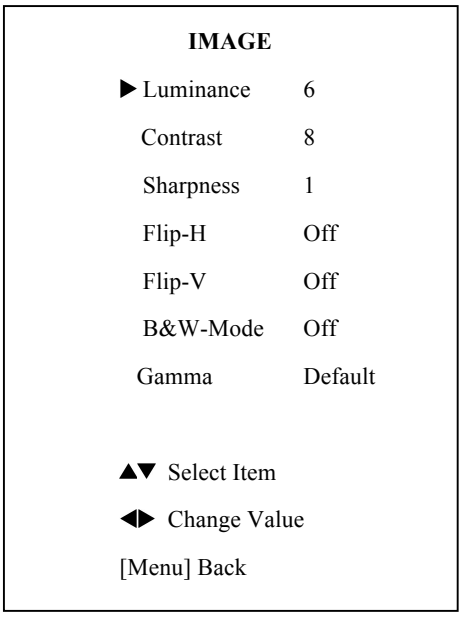
IR Filter: IR Filter, Optional items:1 ~ 3

AWB sens: The white balance sensitivity, Optional items: Normal, High, Low.

Style: Optional items: Style1, Style2, Style3.

4. IMAGE

Move the cursor to the Image item in the main menu and press [home] button, IMAGE menu appears, as shown in the following figure.



Luminance: Brightness adjustment. Optional items: 0 ~ 14

Contrast: Contrast adjustment. Optional items: 0 ~ 14

Sharpness: Sharpness adjustment. Optional items: Auto,0 ~ 15

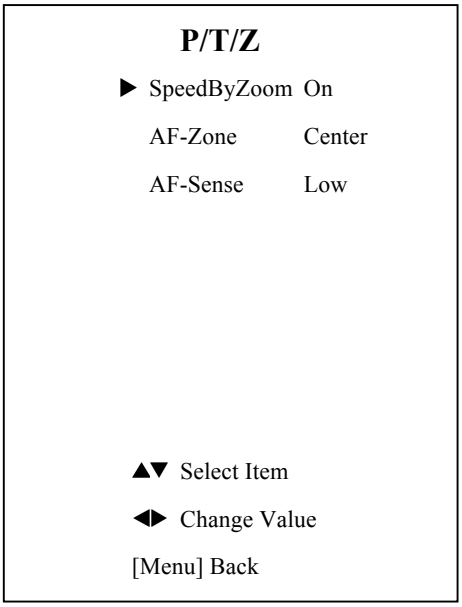
Flip-H: Image flipped horizontally. Optional items: On, Off

Flip-V: Image Flip Vertical. Optional items: On,Off

B&W-Mode: Image color. Optional items: On, Off

Gamma: Optional items: Default,0.45,0.5,0.56, 0.63

5. P/T/Z



SpeedByZoom: The depth of field scale switch, Optional items: On, Off

AF-Zone: Interested in focusing area, Optional items: Top, Center, Bottom

AF-Sense: Automatic focusing sensitivity options, Optional items: Low, Normal, High

6. NOISE REDUCTION

Move the cursor to the Noise Reduction item in the

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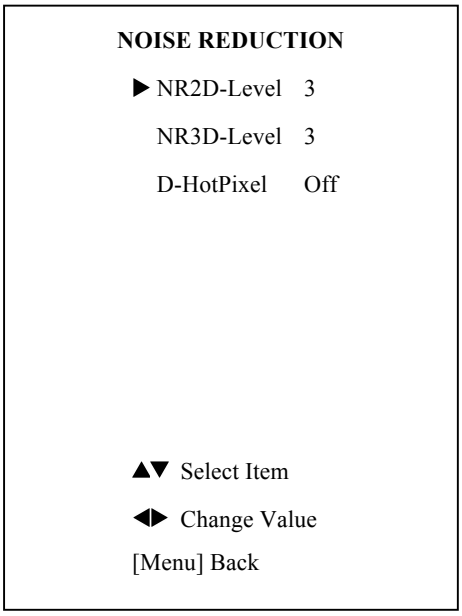
main menu and press [home] button, NOISE REDUCTION menu appears, as shown in the following figure.



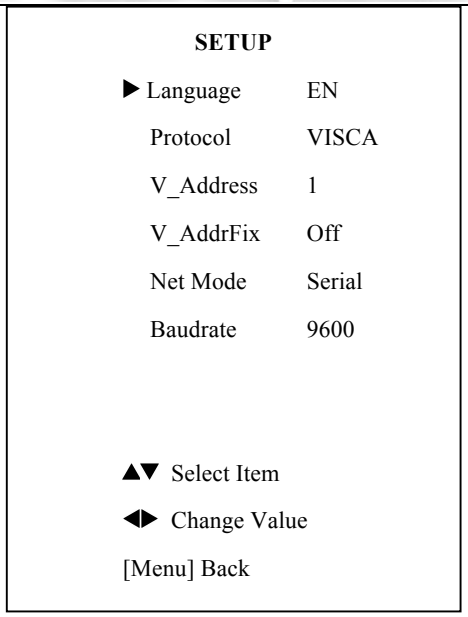
NR2D-Level: 2D noise reduction. Optional items: Off, Auto, 1 ~ 5

NR3D-Level: 3D noise reduction. Optional items: Off, 1 ~ 8

D-HotPixel: Dynamic bad points, Optional items: Off, 1 ~ 5

7. SETUP

Move the cursor to the Setup item in the main menu and press [home] button, SETUP menu appears, as shown in the following figure.



Language: menu language, Optional items: EN, Chinese

Protocol: Control protocol type. Optional items: AUTO, VISCA, PELCO-D, PELCO-P

V_Address: Protocol address, To be decided according to the agreement, AUTO, VISCA protocol Optional items: 1 ~ 7

P_D_Address: PELCO-D protocol Optional items: 0 ~ 254

P_P_Address: PELCO-P protocol Optional items: 0 ~ 31

V_AddrFix: If I can change through the serial port of infrared switch, Optional items: On, Off（When set to On, useless in 88 30 01 FF Command）

Net Mode: Set the serial port control networking, Optional items: Serial, Paral

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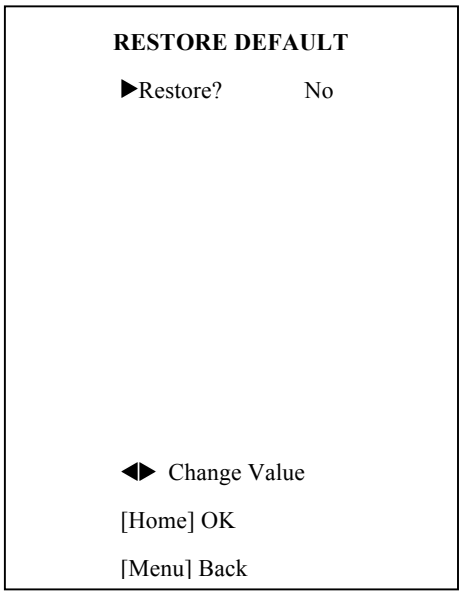
Baudrate: Serial port baud rate. Optional items: 2400, 4800, 9600

8. RESTORE DEFAULT

Move the cursor to the Restore Default item in the main menu and press [home] button, RESTORE DEFAULT menu appears, as shown in the following figure.



Restore: Confirm restore factory settings. Optional items: Yes, No

Note: Press [HOME] button to confirm, All parameter restore default, Include IR Remote address and VISICA Address

Save: Save Options. Optional items: Yes, No

Equipment Setup and internet connection

1. Operating Environment

Operating System: Windows 2000/2003/XP/vista/7

Network Protocol: TCP/IP

Client PC: P4/128MRAM/40GHD/ support scaled graphics card, support DirectX8.0 or more advanced version.

2. Equipment Installation

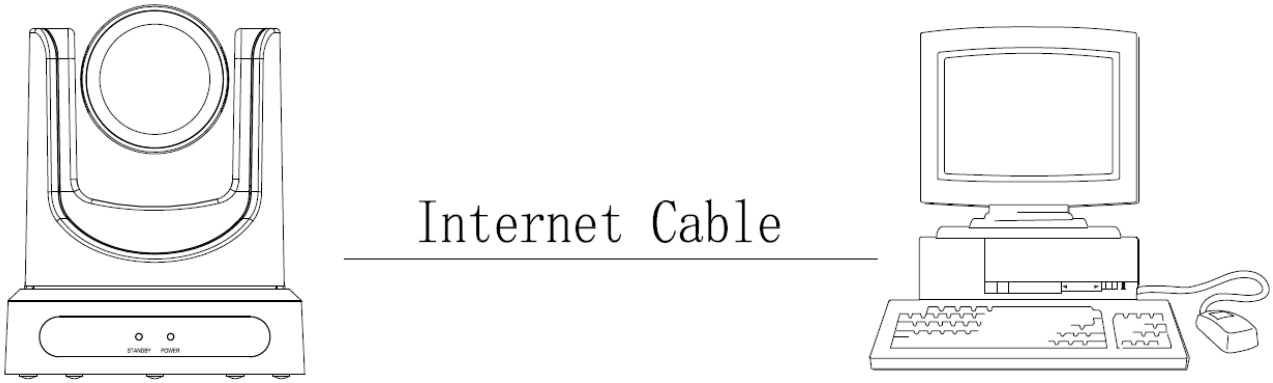
1) Connect internet camera to your internet or to your PC directly via internet cable.

2) Turn on DC12V power.

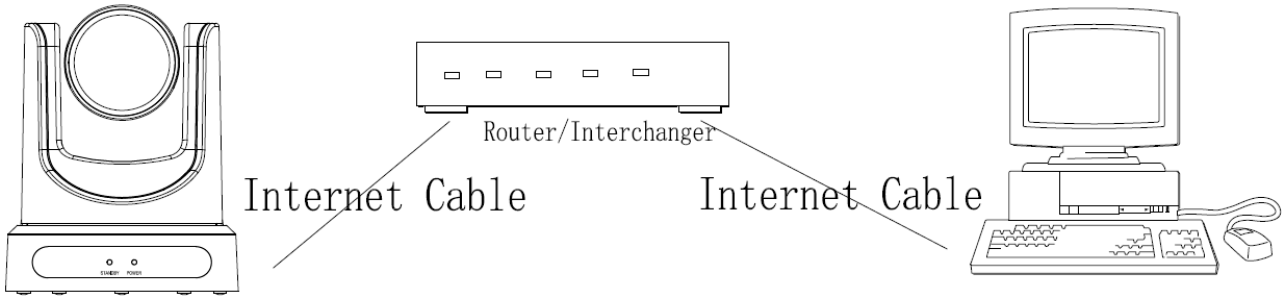
3) The orange light of internet port lit on, green light flashing, and the physical connection finished.

3. Internet Connection

Connection ways between internet camera and computer, as picture 1.1 and picture 1.2 shown:



Picture 1.1 connect by internet cable



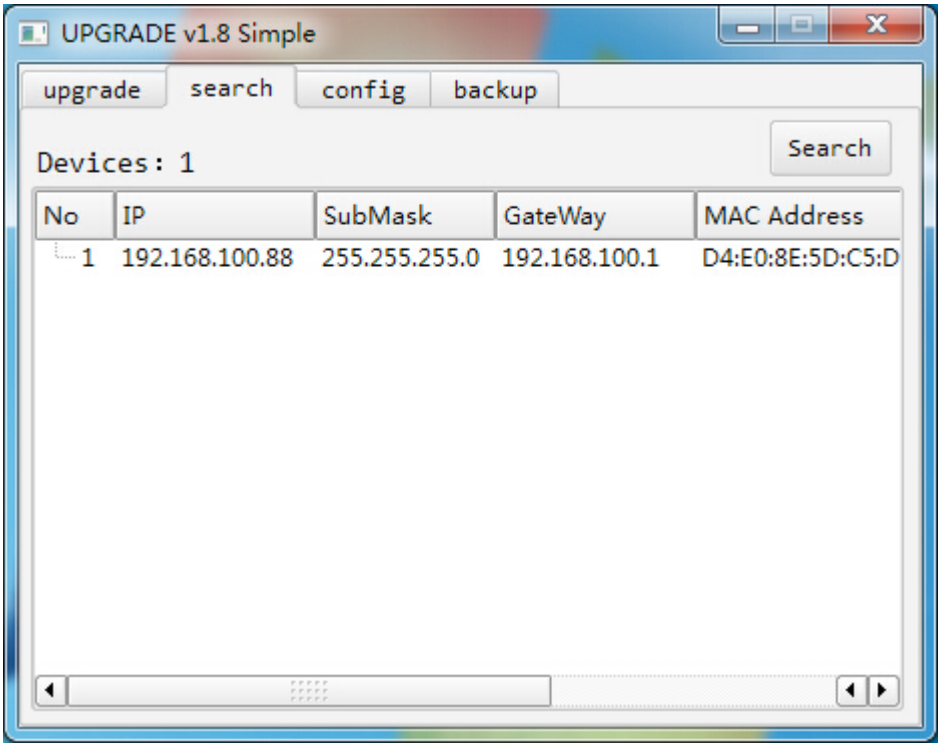
Picture 1.2 Connect by router /interchanger

IP camera visited/ controlled by LAN

1 Setup IP address

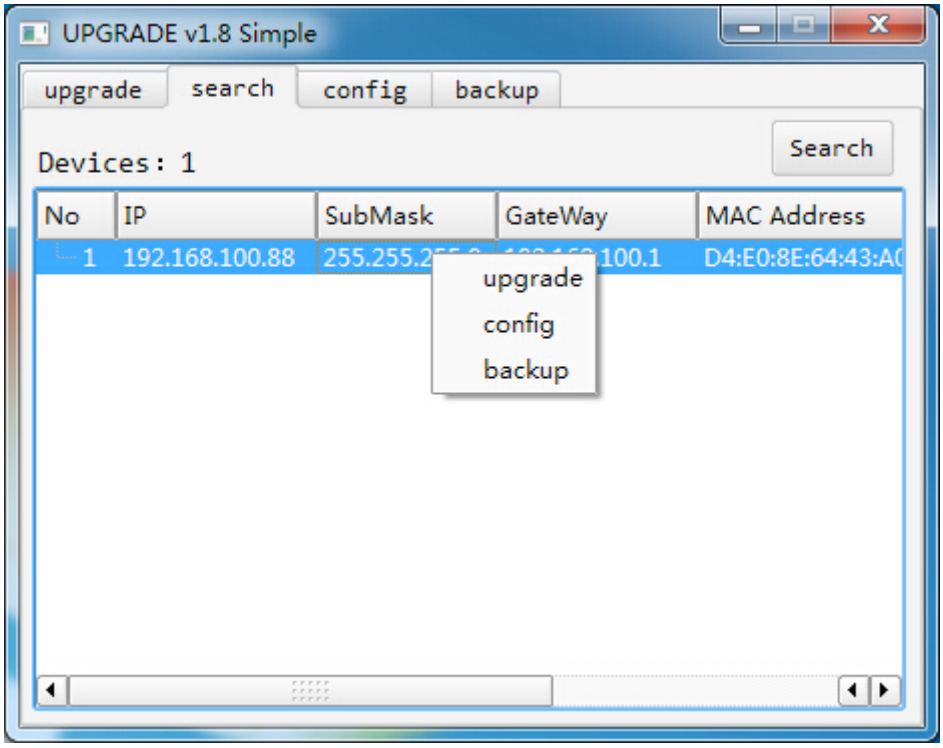
1.1 Connect IP Camera to internet (or PC), then turn on the power on IP Camera, shown as above. IP address can be searched via update software(software upgrading tool,named upgrade_En.exe in small CD in package). shown as below:

Run upgrade_En.exe (UPGRADE v1.8) by CD-Rom, click [Search].The software will show the current LAN camera's IP address, subnet mask number, network gateway number and camera MAC serial number etc, shown as below:

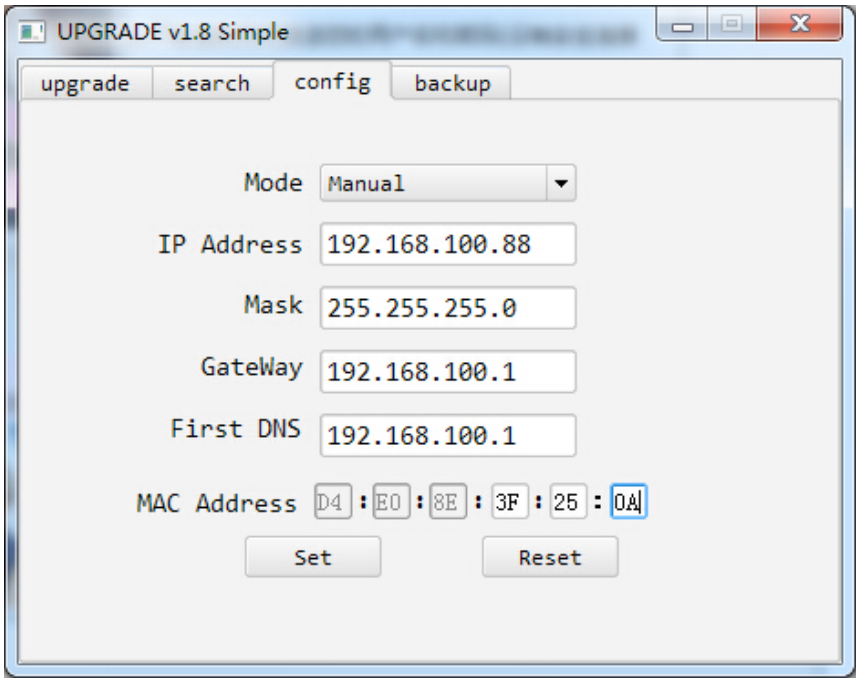


If IPC IP address and PC IP address not in the same internet segment, upgrade_En.exe can modify IP address, subnet mask and port number etc. accordingly.

In UPGRADE v1.8, select the camera needed to be modified, shown as below:



Click “config” then go to below:



Enter new IP in "IP" bar, subnet mask in "Mask" bar, Gateway,First DNS, MAC address,and click “Set”. Shown as above.(For example: if your PC IP is 192.168.1.88, then camera IP must be 192.168.1.xx, the first, second, third number must keep the same)

NOTE!

IP camera default IP address"192.168.100.88", user "admin", password "admin".

2 Visit/Access IP Camera

2.1 Input http://192.168.100.88 to IE (better with IE web browser, others will cause little latency),a login window pop up, input login name: admin, password: admin, shown as below:

Windows Security
The server 192.168.100.88 is asking for your user name and password. The server reports that it is from ..
Warning: Your user name and password will be sent using basic authentication on a connection that isn't secure.
User name
Password
Remember my credentials
OK
Cancel

2.2 Input login name and password, click "confirm", then pop up below window,language select button on the left bottom:

NOTE !

If user first time use this camera by internet (only for new user), must install a player software (VLC). Please go to http://4dx.pc6.com/xy/vlcplayer.zip,pop out the download window, click“Save”. Then Install VLC (player software),

After installation,login again,will show as above:

IP Camera accessed/controlled by WAN (internet)

1. Setup IPC accessed/controlled by dynamic DNS

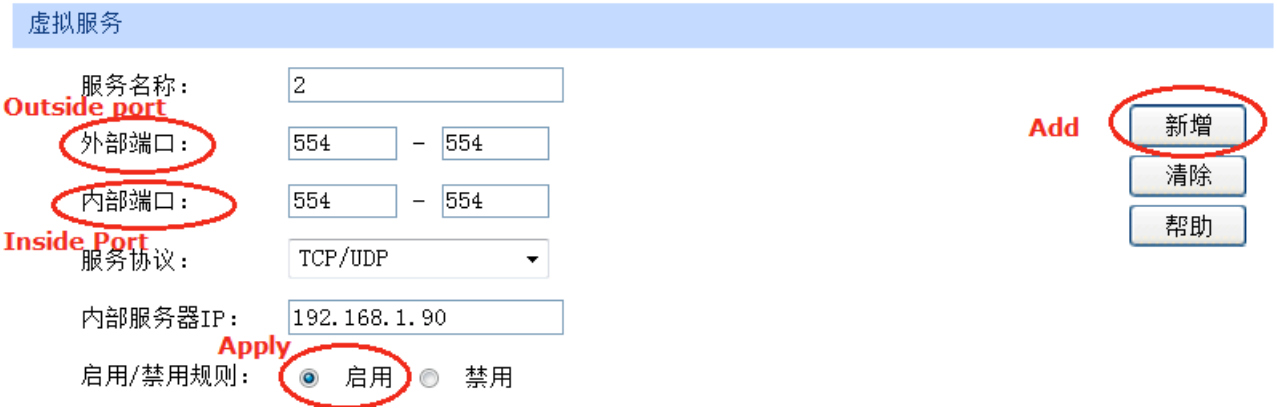
2 dynamic DNS available:

Dyndns.org,

3322.org

1.1 Router Port Mapping:

Take TP-LINK router for example,enter Router Home Page (interface page),select “Transit control”- “ Transit rule"--"Virtual server"-- “Virtual service” ,add a new port number in “Outside Port” ,add a new port number in “inside port”, put camera IP address to “IP address”,then select “Apply” and “Add”,shown as below: (sorry,we do not have English Version TP-Link here,so put the Chinese Version picture for reference,the position is the same)



服务列表

选择	序号	服务名称	服务协议	外部端口	内部端口	内部服务器IP	状态	设置
	1	2	TCP/UDP	554	554	192.168.1.90	已启用	
	2	1	TCP/UDP	88	80	192.168.1.89	已启用	
	3	3	TCP/UDP	89	80	192.168.1.90	已启用	

2. Dynamic DNS visit camera

1.1 Camera accessed by dynamic DNS

Set domain name to camera, setup the parameter, then dynamic DNS can access camera.

Access link：http://hostname :port number

For example, setup host computer name: youdomain.f3322.org, camera port number: 554,

Access link should be: http://youdomain.3322.org:554

NOTE！

If camera port default as 80,then unnecessary to input port number, use host name can access camera directly .

VLC stream media player monitoring

1. **Visit VLC media server procedure**

1.1 Open VLC media player, click "Media"⟶ "Open Network Steam", or click "Ctrl+N"; as below:

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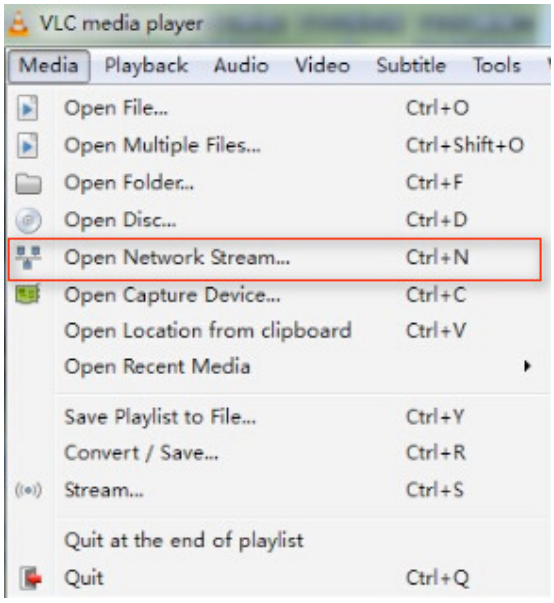
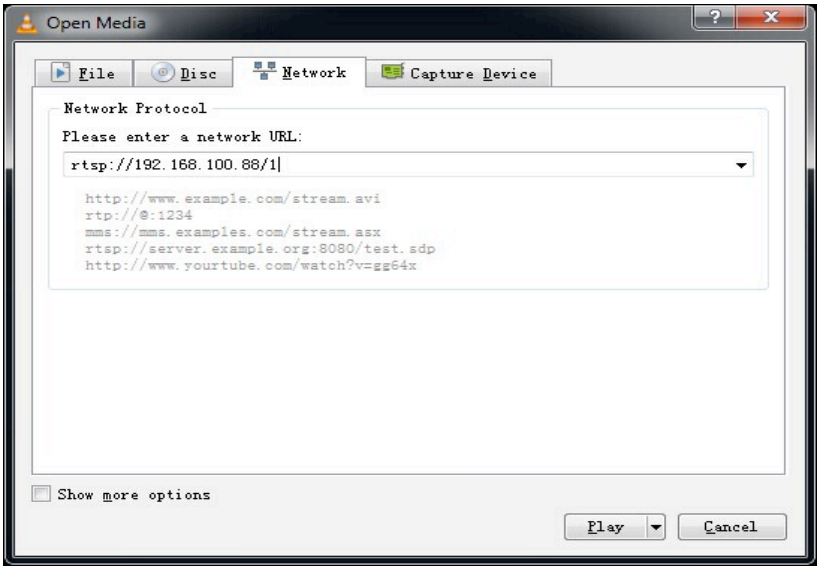


1.2 Input URL address: rtsp://ip: port number/1 (Main stream); rtsp://ip: port number/2(sub stream)(When RTSP port number default value is 554,then can be omitted as rtsp://ip/1 or rtsp://ip/2)



IP Camera parameter setup

1 Homepage introduction

1.1 Menu

All pages include 2 menu bars:

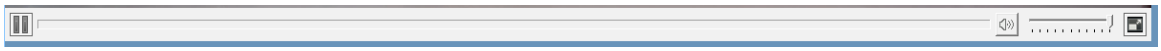
Real time monitoring: displaying video image

Parameter setup: with function buttons

1.2 Video viewing window

Video viewing window must be same as video resolution, the bigger the resolution is, the bigger the playing area is. Double click viewing window, will show full-screen, double click again, will return to initialized size.

Status bar in viewing window shown as below



1） Video playback pause button: control real-time video pause, stop the last picture, click recoverable video again.

2） Audio control buttons: can set slient mode.

3）Full screen switch button.

1.3 PTZ Setup

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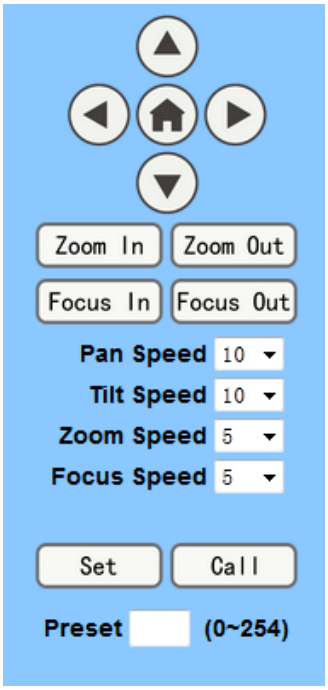


1) PTZ direction control box: Up, down, left, right, home oblique button as above

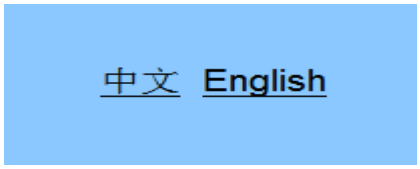
2) Rate: Vertical speed can be chosen as 1 ~ 24, horizontal direction at the rate of 1 ~ 20.

select corresponding speed and click direction button to realize PTZ speed up or speed down.

3) Zoom In/Zoom out: for zooming in or zooming out, Focus In/ Focus Out: Focusing on distant objects or Focusing on close objects.

4) Set/Call: When PTZ turn to expected position, can set up a number of preset that user want. click "Set" button,when PTZ turn to other position, click "Call" button,PTZ turn back to preset position.

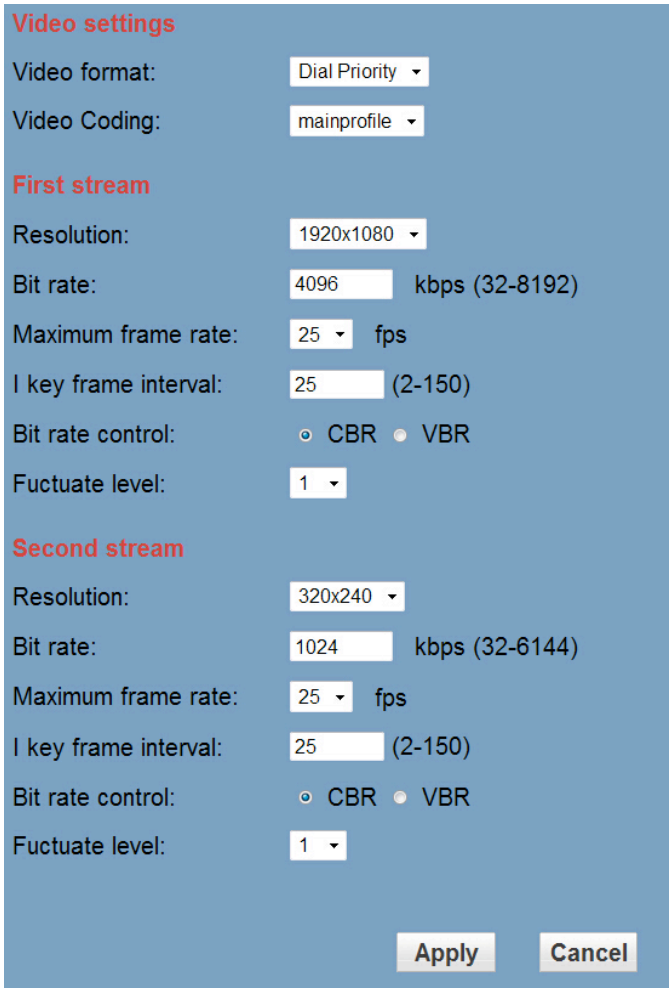
1.4 Language selection



Chinese/English

1 Media

1.1 Video Setup,please click "Video"



1) Video format

Support 50HZ(PAL)and 60HZ(NTSC),and Dial priority three formats.

2) Video Coding

Support baseline and mainprofile format

3) Resolution

Main bit flow support 1920x1080,1280x720,minor bit flow support 640x360,320x180,the bigger resolution is, the clearer the image will be, more network bandwidth will be taken.

4) Bit Rate

User can assign bit flow/stream, normally speaking, the bigger bit flow is, the clearer the image will be. The bit allocation must combine with network bandwidth, when the network bandwidth is too narrow and the allocated bit flow is too big, will cause video signal flow not to be transmitted normally, the video effect will be worse.

5) Maximum frame rate:

User can specify the size of the frame rate, generally, the frame rate greater, the image more smooth; Frame rate is smaller, the more sense of beating.

6) Bit Rate:

Code stream control way:

Constant bit rate: video coder will be coding according to preset speed

Variable bit rate: video coder will adjust the speed based on preset speed to gain the best image quality.

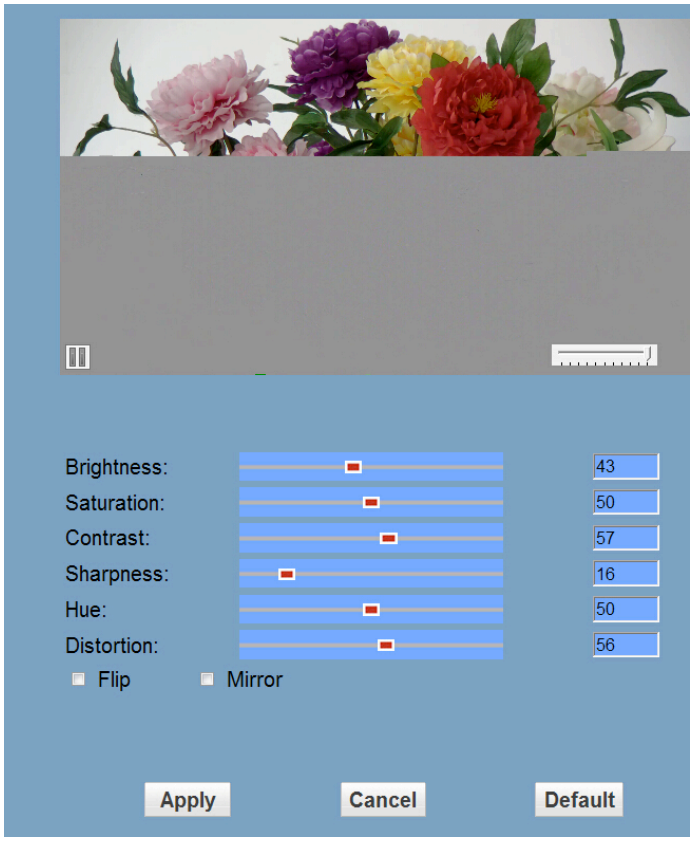
7) I key frame interval:

Set interval between 2 I frame, the bigger interval is, the response will be lower from viewing window.

8) Fluctuate level

Restrain the fluctuation magnitude of variable rate, grade 1 ~ 6

2 Image Setup,please click "Image"



1) Brightness

Image bright 0~100, slider control, on the right shows the corresponding numerical. Default 43.

2) Saturation

Saturation 0~100, slider control, on the right shows the corresponding numerical. Default 50.

3) Contrast

Contrast0~100, slider control, on the right shows the corresponding numerical. Default 57.

4) Sharpness

Sharpness0~100, slider control, on the right shows the corresponding numerical. Default 16.

5) Hue

Hue 0~100, slider control, on the right shows the corresponding numerical. Default 50.

6) Distortion

Adjusted the wide-angle lens image distortion occurs, controllable range 0 ~ 100, right shows the corresponding numerical. Default 0.

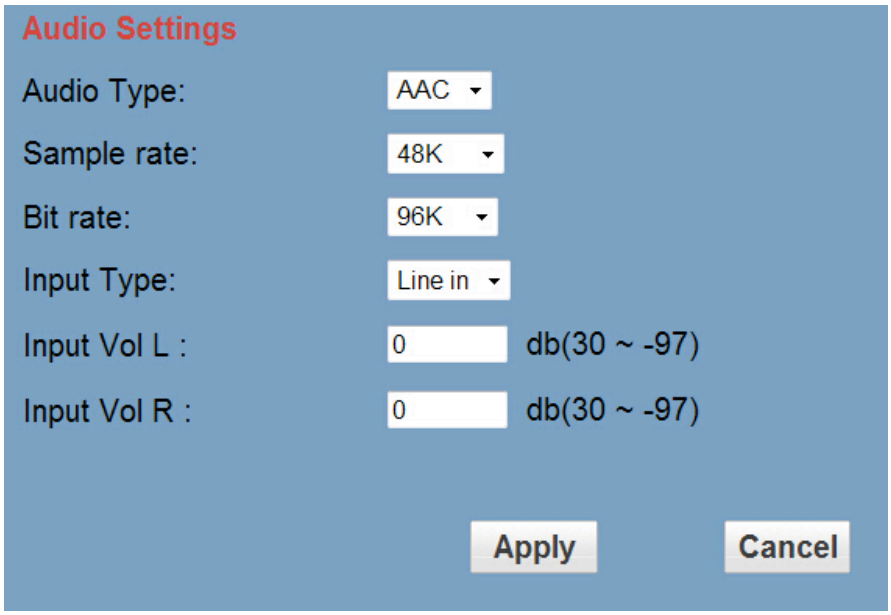
7) Flip & Mirror

Tick Flip to realize image upside down, tick mirror to realize image around the mirror. Default not tick.

8) Button

Adjusting the parameters, press "apply" button to save, press "cancel" button to cancel the adjustment of the parameters, press "default" button obtain the default value.

3 Audio Setup,please click “Audio”



1) Audio Type

Audio type AAC

2) Sample rate

Sample rate 44.1 K and 48 K,selectable.

3) Bit rate

Bit rate 96k,128k,256k,selectable

4) Input Type

line in only

5) Input VolL

The volume of the left channel

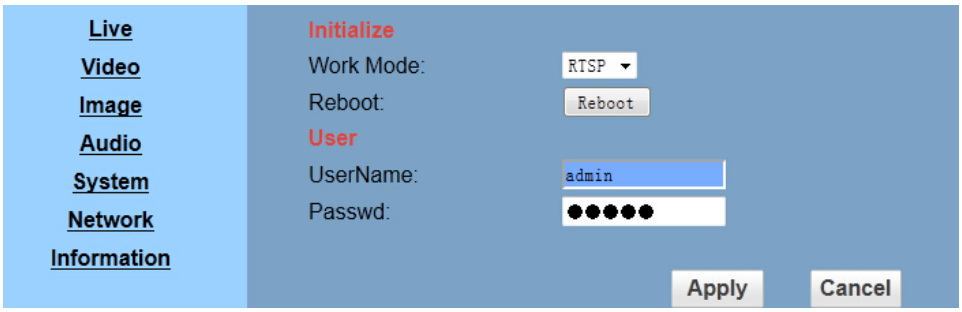
6) Input VolR

The volume of the right channel

7) Button

Press "apply" button to save parameters, press "cancel" button to cancel parameter

4 System Setting,please click “System”



1) Work Mode

Work Mode RTSP

2) Reboot

Click the "Reboot" button, system restart.

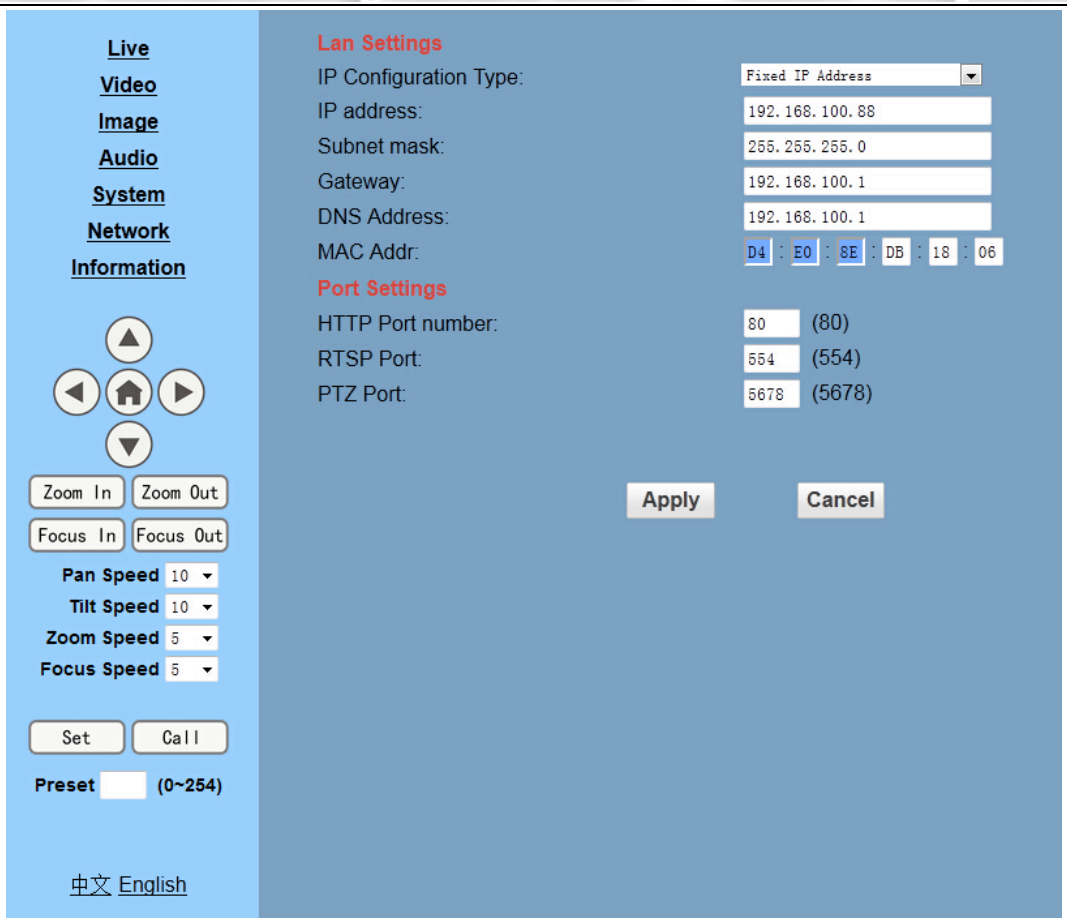
3) User and password

The user can modify the password (letters and Numbers only)

4) Apply / Cancel

Modify password and click the "apply" button to the login page, press "cancel" button to cancel password change.

5 Network Setting,please click “Network”



1) Lan Settings

Default the IP address is 192.168.100.88, The MAC address can be modified.

2) Port Settings

IP address identifies the network device, the device can run multiple web applications, each network program using network port to transmit data, so data transmission to be carried out between the port and port. Port setting is to set up WEB SERVER program using which port to transmit. When port mapping, need to be consistent with the port number(default port: 80)

3) RTSP Port

Network camera support RTSP protocol, use the VLC tools broadcast.

4) TCP Port

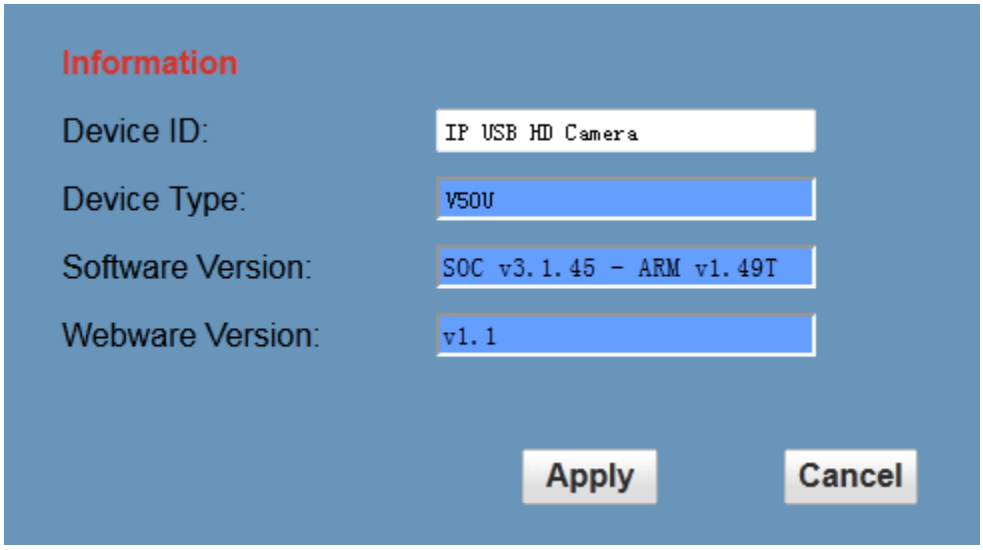
Support TCP protocol, default port: 5678.

5) Apply / Cancel

Modify network parameters then press "Apply" button to modify network parameters, press "Cancel" button to cancel network parameters.

6 Device Information,please click “information”

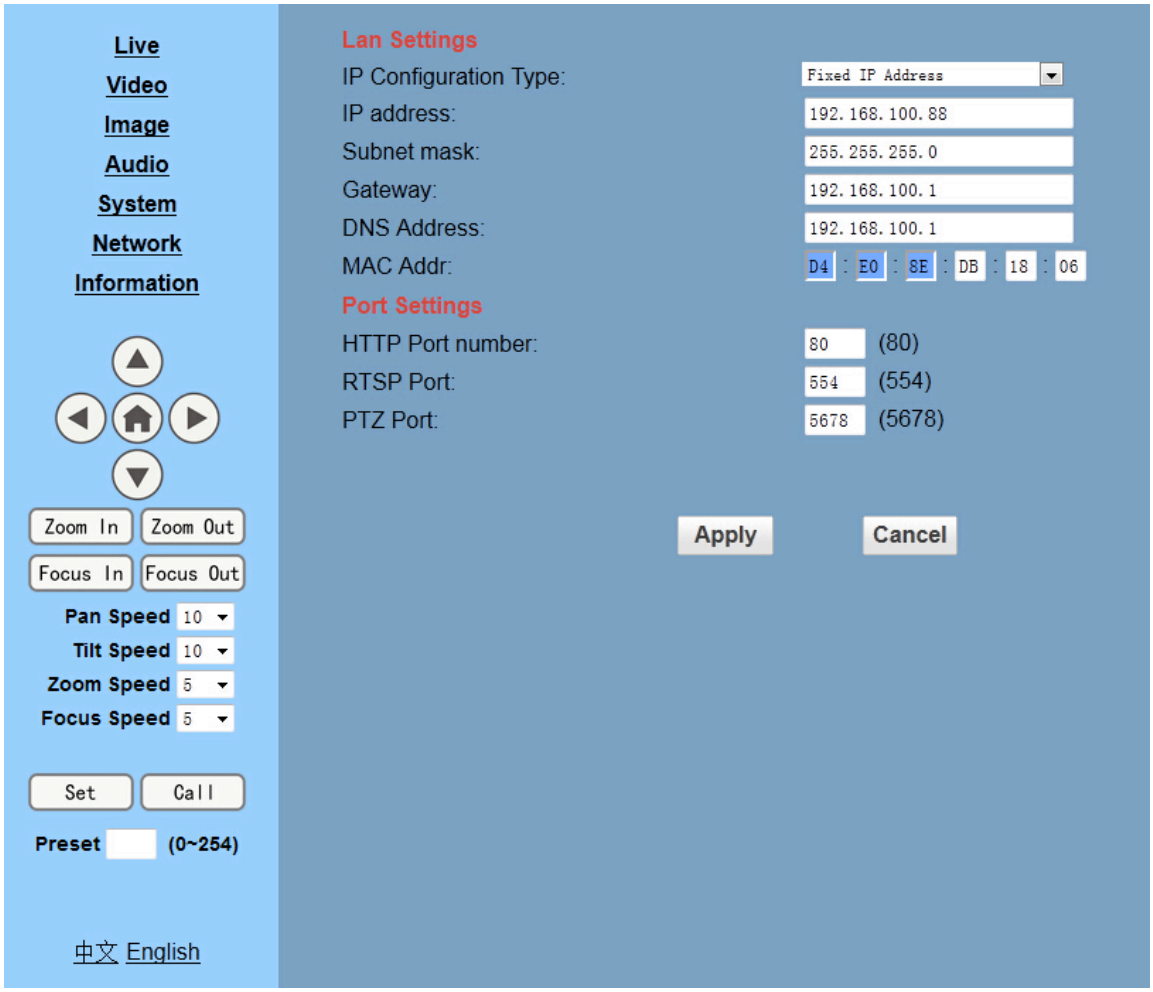
Show the current device information, as shown below.



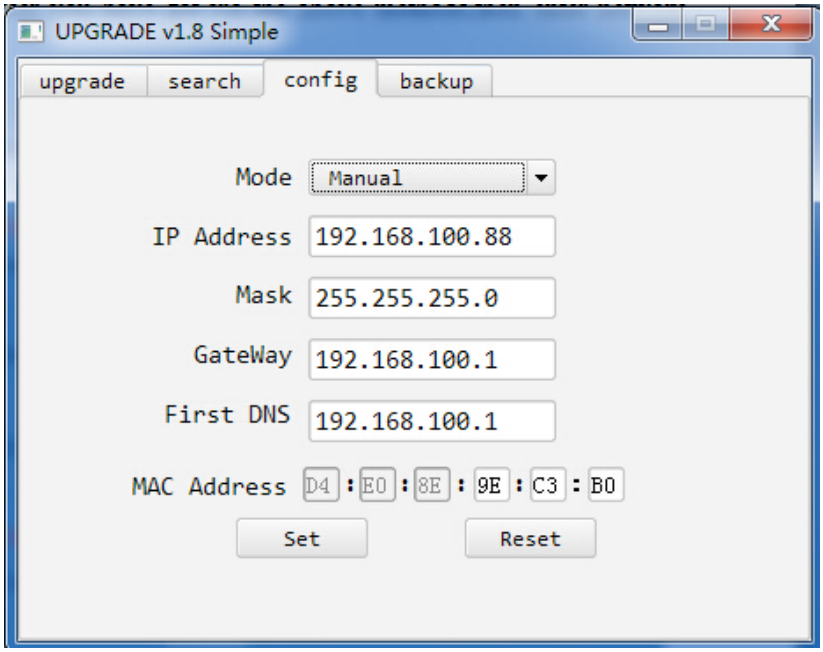
Network Control

1. View from Web browser (better in IE)
   - To view from web browser, firstly need to check camera IP address. There are 2 methods to check:
     Method 1: press * and # and 4 on remote controller one by one, the camera IP address will be shown on screen.
     Method 2: connect camera to PC with ethernet cable, use “upgrade_En.exe” to search for IP address

   - Please enter the IP address, username, password to web browser you have got via the above methods, then enter network control/viewing.
2. Change IP address,2 methods as below:
   Method 1: On web control page, find “Network”--->Change IP---->Click “Apply”----> Restart camera



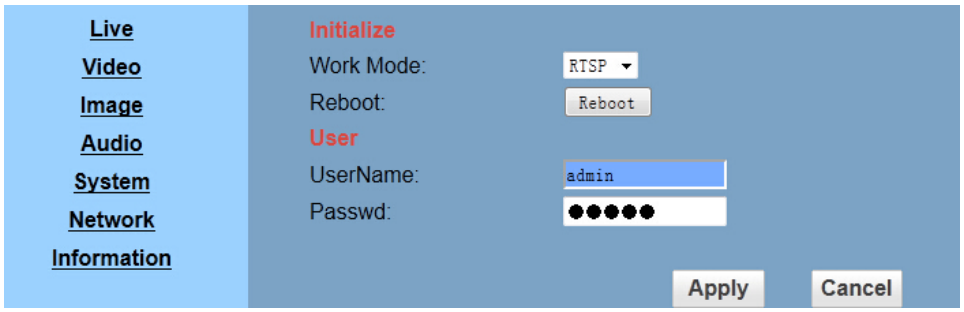
Method 2: Open “upgrade_En.exe”, change IP and click “Set”



3. Once IP changed, need to restart the camera. 2 methods to restart as below:

Method 1: Turn off and turn on manually to restart camera

Method 2: On web page, find “System” and click “Apply” (when under remote controlling environment, better use this method)



PTZ ON IP NETWORK

This model currently supports various PTZ control methods, including RS232, RS485, IR remote control, HTTP CGI, and TCP protocol.

The following is the detailed description about HTTP CGI and TCP Protocol control methods.

1. TCP Protocol Method

V51N implements TCP server inside, there is a port configurated by Web for receiving the connection from TCP client,the TCP port number is 5678. Once connection between client and server set up, the client will send PTZ command to server,the server then parse and execute PTZ command.

PTZ command format is based on VISCA Protocol to define, details as below:

Command	Function	Command Packet	Comments
Zoom	Stop	81 01 04 07 00 FF	
	Tele(Standard)	81 01 04 07 02 FF	
	Wide(Standard)	81 01 04 07 03 FF	
	Tele(Variable)	81 01 04 07 2P FF	P = 0(low speed) - 7(high speed)
	Wide(Variable)	81 01 04 07 3P FF	
Focus	Stop	81 01 04 08 00 FF	
	Far(Standard)	81 01 04 08 02 FF	
	Near(Standard)	81 01 04 08 03 FF	
	Far(Variable)	81 01 04 08 2P FF	P = 0(low speed) - 7(high speed)
	Near(Variable)	81 01 04 08 3P FF	
	Auto Focus	81 01 04 38 02 FF	AF On/Off
	Manual Focus	81 01 04 38 03 FF	
	Auto/Manual	81 01 04 38 10 FF	
Pan & tilt	Up	81 01 06 01 VV WW 03 01 FF	VV: Pan speed 0x01 (low speed) to 0x18 (high speed) WW: Tilt speed 0x01 (low speed) to 0x14 (high speed)
	Down	81 01 06 01 VV WW 03 02 FF	
	Left	81 01 06 01 VV WW 01 03 FF	
	Right	81 01 06 01 VV WW 02 03 FF	
	UpLeft	81 01 06 01 VV WW 01 01 FF	
	UpRight	81 01 06 01 VV WW 02 01 FF	
	DownLeft	81 01 06 01 VV WW 01 02 FF	

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	DownRight	81 01 06 01 VV WW 02 02 FF	
	Stop	81 01 06 01 VV WW 03 03 FF	
	Home	81 01 06 04 FF	
Preset position	Reset	81 01 04 3F 00 PP FF	PP: Position Number(==0x00-0x59, 0x64-0xFE)
	Set	81 01 04 3F 01 PP FF	
	Recall	81 01 04 3F 02 PP FF	

2. HTTP CGI Method

This model integrated with web server inside, support CGI related with PTZ.

2.1 Pan and Tilt *control URL format as below:*

http:///[Camera IP]/cgi-bin/ptzctrl.cgi?ptzcmd&[action]&[pan speed]&[tilt speed]

More descriptions:

[Camera IP]: This camera IP address;

[action] including：up, down, left, right, ptzstop;

[pan speed] : 1(low speed) – 24(high speed);

[tilt speed]: 1(low speed) – 20(high speed).

2.2 Zoom *control URLformat as below:*

http:///[Camera IP]/cgi-bin/ptzctrl. cgi?ptzcmd&[action]&[zoom speed]

More descriptions:

[Camera IP]: This camera IP address;

[action] including: zoomin, zoomout, zoomstop;

[zoom speed]: 0(low speed) – 7(high speed).

2.3 Focus *control URLformat as below:*

http:///[Camera IP]/cgi-bin/ptzctrl.cgi?ptzcmd&[action]&[focus speed]

More descriptions:

[Camera IP]: This camera IP address;

[action] including: focusin, focusout, focusstop;

[focus speed]: 0(low speed) – 7(high speed)

2.4 Preset Position control URL format as below:

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http://[Camera IP]/cgi-bin/ptzctrl.cgi?ptzcmd&[action]&[position number]

More descriptions:

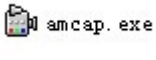
[Camera IP]: This camera IP address;

[action] including: posset, poscall;

[position number]: 0-89,100-254.

USB Control

Connect USB cable from camera to computer (must with USB3.0 port)

Install the software in the small CD in the package (amcap.exe) 

,and click to open.

Maintenance and Troubleshooting

Camera Maintains

- If camera will not be used for a long time, please turn off the power switch, disconnect AC power cord of AC adaptor to the outlet.
- Use soft cloth or tissue to clean the camera cover.
- Please use the soft dry cloth to clean the lens. If the camera is very dirty, clean it with diluted neuter detergent. Do not use any type of solvents, which may damages the surface.

Unqualified Application

- No shooting extreme bright object for a long period of time, such as sunlight, light sources, etc.
- No operating in unstable lighting conditions, otherwise image will be flickering.
- No operating close to powerful electromagnetic radiation, such as TV or radio transmitters, etc.

Troubleshooting

Image

- No image

1. Check whether the power cord is connected, voltage is OK, POWER lamp is light.
2. Check whether the camera can self-test after startup.
3. Check the BOTTOM switch and make sure the two switches are both set OFF.
4. Check video cable is connected correctly.

- Abnormal display of image

Check video cable is connected correctly.

- Image dithering even at widest zoom position

1. Check whether camera is fixed correctly.
2. Make sure if there are something like vibration machine or other things nearby.

Control

- IR remote controller cannot control the camera

1. Change the battery
2. Check the camera working mode.

3. Check IR address of the Remote Commander is set correctly.

- Serial communication cannot control the camera

1. Check the camera working mode.
2. Check control cable is connected correctly.

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2014/9